

# MARINE REVIEW.

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No. 24.

## Blue Book of American Shipping.

For some time past it has been the aim of the MARINE REVIEW to put into book form the vast amount of statistical information that has been collected in these columns and to add to it various lists and directories of ships, ship owners, ship builders, etc., together with a large number of engravings of the best quality, illustrating the shipping industry of the United States. This book is now being distributed to subscribers. It is offered for sale in heavy leather binding at \$5. The introduction and table of contents, which follow, will give an idea of the scope of this publication.

**Introduction**—Through our intimate relations with the principal concerns engaged in the various branches of lake commerce, and an acquaintance also with coast ship building and shipping interests, during the past six years, we have learned that there is a demand for information regarding these industries that has not as yet been supplied in government records or other directories of limited scope thus far published. This book aims to meet these requirements. An examination will show that it covers ground not as yet occupied by any publication devoted to marine matters, either on the lakes or elsewhere in the United States. It will also be noted that where any line of information previously published is followed, the aim has been to improve the same by additions and by a careful regard for the importance of reliability in every detail.

The intention of the MARINE REVIEW is to make this publication a standard work, to be revised annually, and it is expected that the knowledge of where and how to obtain the information required will make future issues even more valuable than the present one.

"It was intended originally to give the name Marine Review Year Book to the publication. But as the work progressed it was found that the book would, of necessity, deal very largely with shipping interests all over the country, and especially the ship building industry on the Atlantic coast. On this account, and for the reason also that it is the intention to widen the scope of the publication in 1897, so as to make it as valuable to the coast interests as it is now to the lakes, the name was changed to Blue Book of American Shipping.

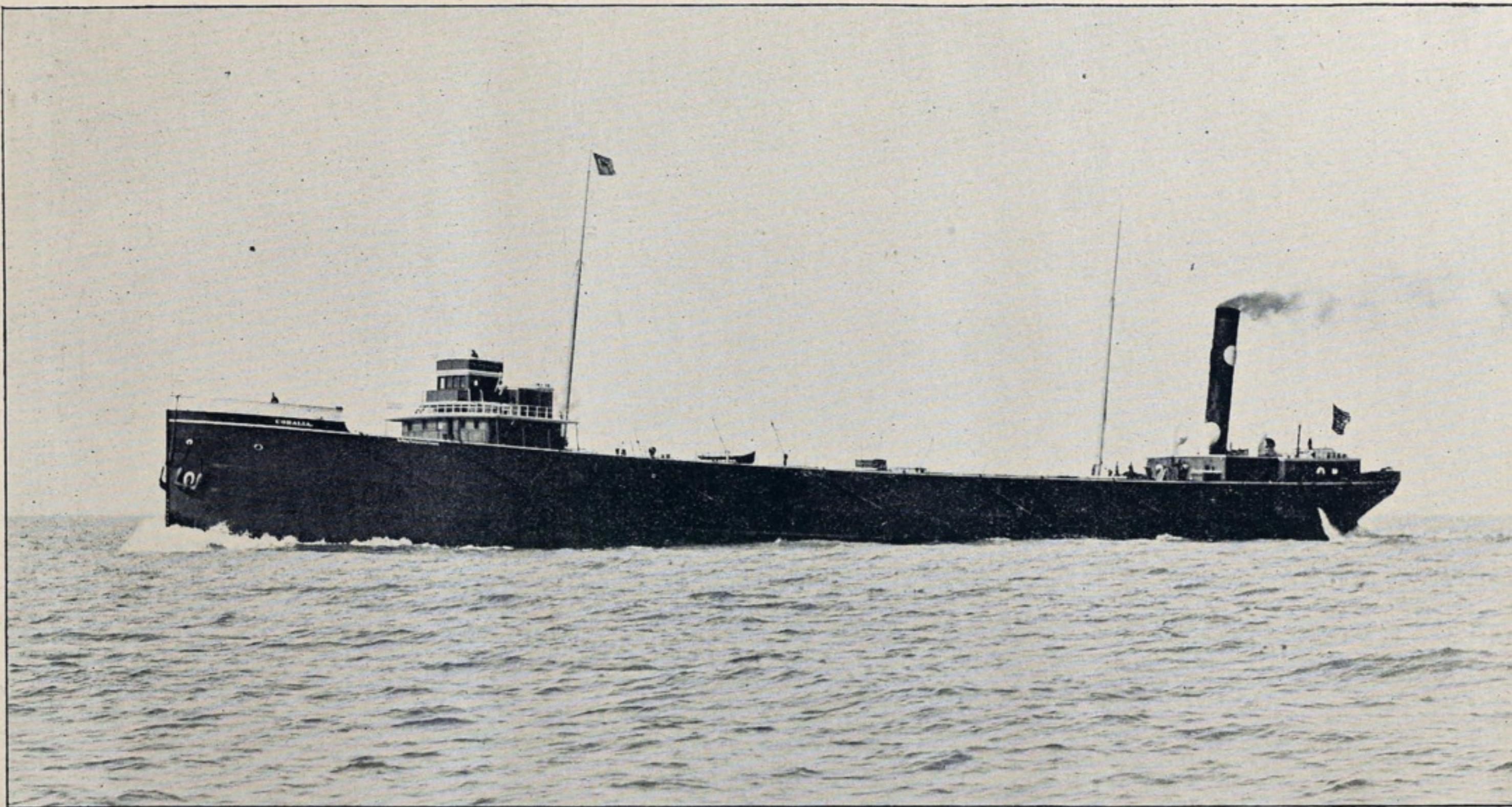
"Patrons of the Blue Book are privileged to ask, at any time during the year, for any information that we may have in hand, or that may be obtained without great difficulty."

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Few of the patrons of the Detroit & Cleveland Steam Navigation Co., who ride on the big steamers City of Detroit and City of Cleveland by night, have any idea of the care that is taken on these steamers to guard against accidents even of a most trivial kind. If the night is at all dark or the weather in the least unfavorable, these big steamers, when working down the Detroit river in the vicinity of the Lime Kilns crossing and Amherstburg, where the channels are shallow, are checked down so that they are barely kept under headway, and they are made to creep along the deepest parts of the channels with as much care as though the life of every passenger was dependent upon avoiding even a slight scrape on the side of the cuts. It is not at all probable that an accident in these river channels would result in loss of life, but the officers of the steamboat line are so jealous of their reputation that they guard against even a report of the slightest grounding in such places. Big freight steamers, deeply laden, pass through these channels with some care, but with no such cautious movements as are noticed on the passenger ships.



Built by the Globe Iron Works Company.

Copyrighted 1896.

Supplement to MARINE REVIEW, Vol. 13, No. 21, May 21, 1896.

HULL: 432 feet over all.  
412 " keel.  
48 " beam.  
28 " deep.

**STEEL STEAMER CORALIA—LARGEST ON THE LAKES.**

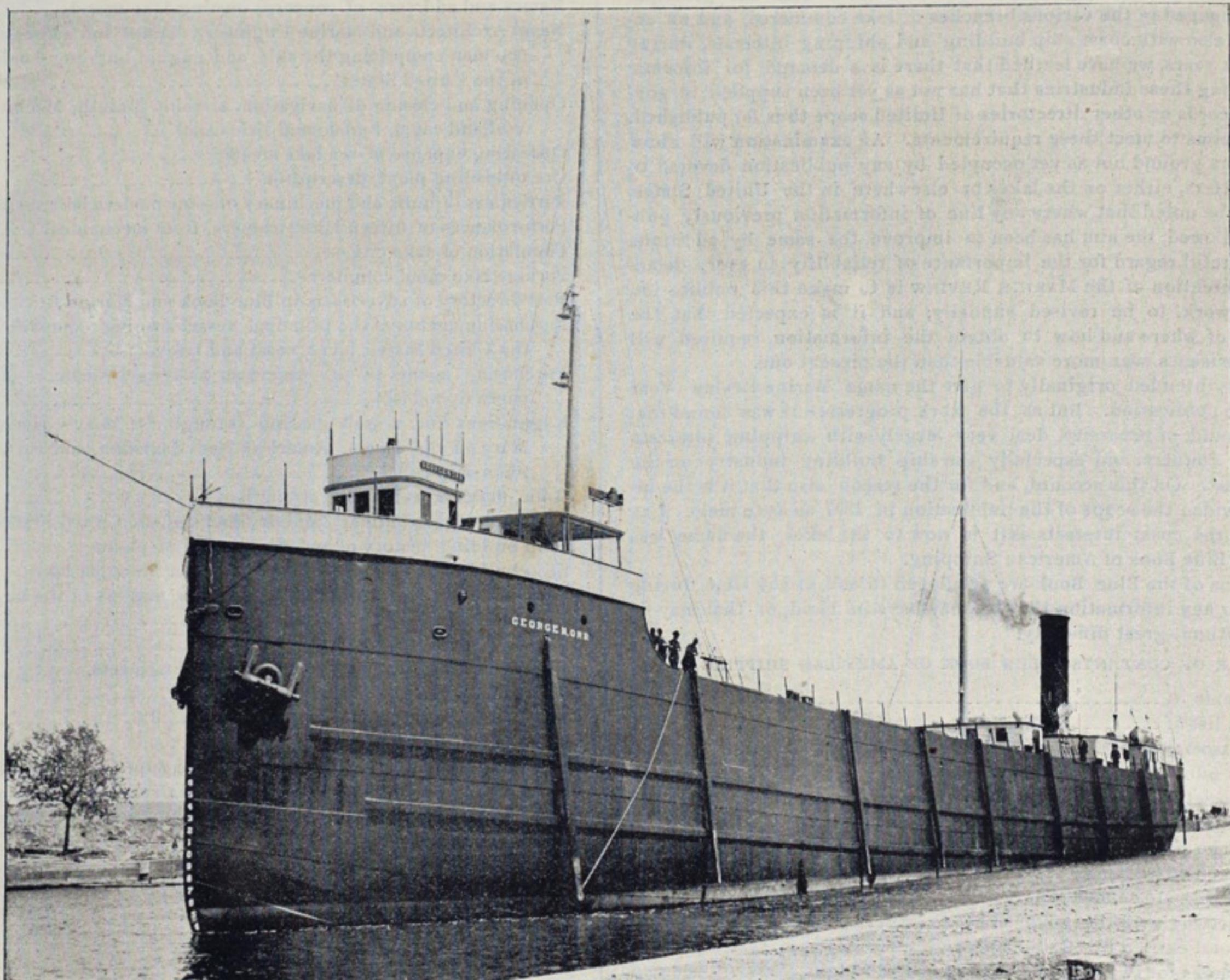
ENGINES: 24, 39, 63 by 42 in.  
BOILERS: Four 11-ft. 9 in. by 10 ft.

## Steel Steamer Geo. N. Orr.

A picture of the steel steamer George N. Orr, recently built by the Chicago Ship Building Co. for the C. W. Elphicke and others of Chicago, appears on this page. The photograph was taken while the steamer was passing through St. Mary's Falls canal. The Orr is a gangway steamer with a main deck and is specially fitted for rapid handling of package freight. She has four gangways on each side. The hull dimensions are: Length of keel, 326 feet; length over all, 342 feet; beam, moulded, 42 feet; depth, moulded, 26½ feet; depth of water bottom, 4½ feet. Engines are of the triple expansion type with cylinders 20, 33 and 54 inches diameter by 40 inches stroke. They were built by the Cleveland Ship Building Co. There are two Scotch boilers, each 12 feet 4 inches diameter by 12½ feet long. Boilers were also built by the Cleveland Ship Building Co. The Orr has a Williamson steam steerer and Providence steam windlass and capstan. She also has stockless anchors and an electric lighting plant with two direct-connected 125-light dynamos, built by the Fisher Electrical Mfg. Co. A shaft hoister 15 by 12 inches in this ship is the first engine of any kind built by the Chicago company.

act without surrendering the tug as well as the barge; that is, that the limit of the owners' liability was their combined value, with freight pending at the completion of the voyage.

It is, of course, well known that there is a rule which constitutes a tug and tow one vessel for the purpose of applying rules of navigation and determining the liability of one or the other or both for damage done to others, but to hold for any reason that they are one vessel for a voyage, when each is in command of her own master, would seem to involve consequences tending to disturb the whole domain of marine law if followed to anything like a logical conclusion. It is understood, however, that in the case of the J. P. Donaldson, now under advisement in the supreme court of the United States, these questions will probably receive an authoritative determination. The question before that court involves the relations of steamer or tug and tow (a general average case), and as the square question was submitted to them, it is highly probable that the court will review the whole relation. This is the more likely since the direct question involved has never been submitted to any court of final jurisdiction, and the determination of our supreme court will



STEEL PACKAGE-FREIGHT STEAMER GEO. N. ORR OF CHICAGO.

## Notes on Important Admiralty Cases.

In the case of the Columbia (73 Fed. Rep., 226) the circuit court of appeals for the ninth circuit announces some law, which, while it may not lie in the mouth of laymen to criticise as law, would seem to be a departure from well recognized rules, only to be justified by most cogent reasons, and these the court fails to give. The proceedings were in limitation of liability on the part of the owners of a barge, which, while in tow of a tug belonging to the same owner, had done damage exceeding her value and pending freight. The district court found that the negligence which caused the injuries and damage complained of was that of the master of the barge; that the towage had ended before "the proximate cause of the accident in question was set in motion," and that the barge alone must make compensation.

The circuit court of appeals held that this was error; that no question of "proximate cause" arose in the case; that in law the tug and barge were one vessel "for the purpose of the voyage in question," and it did not matter in that view whether the negligence causing the damage was of the barge or tug; it was the "negligence of the carrier," and the owners could not claim the protection of the limited liability

receive attention by the courts of all seafaring nations, and if supported by their customary good reasons will "make" or settle the law for the world on the questions involved.

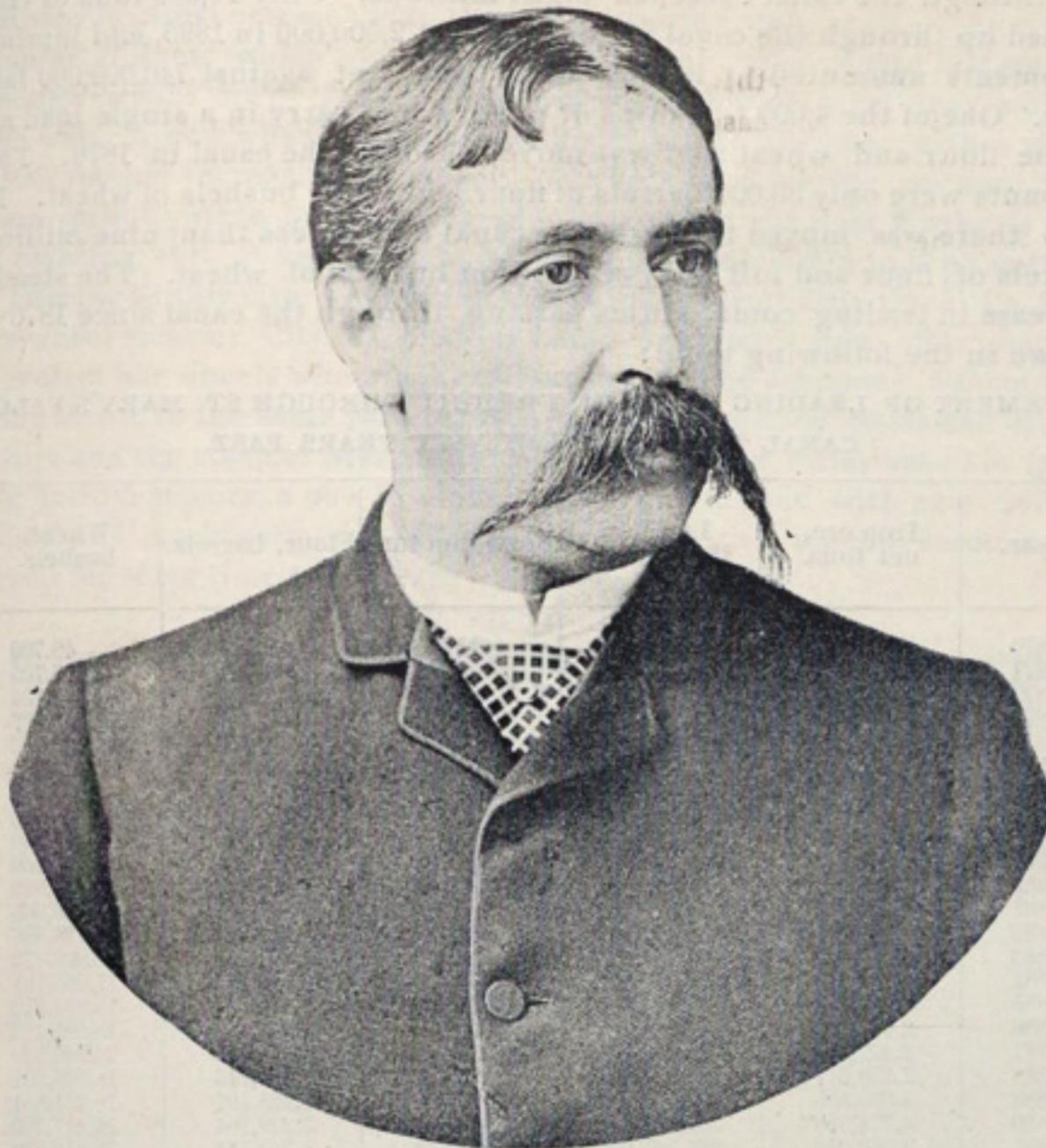
It would certainly seem that the innovation made by the circuit court of appeals in the case of the Columbia, which amounts to an extension of the unit of a marine venture so as to embrace more than a single vessel, is not to be commended. If the tug herself had been at fault, a different question might be presented, but the court expressly says that "no question of proximate cause \* \* arises in the case." The decision of the supreme court in the case referred to is, therefore, awaited with interest.

The Nickel Plate road sells homesearchers' excursion tickets to the south, June 16, July 17 and 21, Aug. 4 and 18, Sept. 1 and 15, Oct. 6 and 20. For detailed information write any agent of the Nickel Plate road, or address B. F. Horner, general passenger agent, Cleveland, O. 108-30

Low rate, short limit tickets between Cleveland and Lorain have been placed on sale via the Nickel Plate road at \$1.00 for the round trip. 77-7-31

## Col. William Ludlow, U. S. A.

Lake vessel owners who remember the controversy between Col. Wm. Ludlow, corps of Engineers, U. S. A., and the United States light-house board, over the lighting of St. Mary's river, may be a little surprised to learn that officer is again in charge of engineering work in one of the most important stations in the service, the third district, New



York. But this duty is by no means the most important that has been assigned to Col. Ludlow by the government since his controversy with the light-house board. As army attache of the American legation in London he conducted an extensive examination of the principal ship-canals of Europe, and was given special recognition and attention by the heads of foreign governments. As the principal member of the commission appointed by President Cleveland to examine and report upon the Nicaragua canal, in accordance with an act of the last congress, he has appeared very prominently in all official inquiry of late regarding that big project. As might be expected, the report of the commission was not favorable to the private interests involved in the canal question, and it will go a long way towards protecting the interests of the government before appropriations are made for the project.

## Engines Nearer Amidships.

Although the short reference in a recent issue of the REVIEW to the question of placing engines in large lake steamers nearer amidships was not written with the intention of going into the subject to any great extent, it has attracted considerable attention. Some of the ship builders, who have in the past expressed views decidedly favorable to this change, are slow about taking up the question again, but it is quite certain that the majority of them would favor the change in location of machinery now more than ever, if owners would accept, for the present, the disadvantages in port and endeavor to have dock equipment altered as rapidly as it is possible to do so. Mr. Ricketson, manager of the Inter-Ocean fleet of ore carriers, sends us the following communication on the subject:

Editor MARINE REVIEW: I am pleased to notice, from articles in your late issues, that the ship building interest is discussing the advisability of placing the engines and boilers of our freight boats on the lakes nearer the center or middle of the boats. In 1890, when the Detroit Dry Dock Co. built the Maryland for our company, I insisted on the machinery being placed near the middle of the boat, although the extra length of shaft and necessary bearing added very considerably to her cost. I have never had occasion to regret it. Up to the present day I have never seen any sign of strain or weakness of any kind, or loose or broken rivets. During the five years she has been in commission she has delivered 636,225 gross tons iron ore and many loads of grain and coal. Her average time unloading 3,000 gross tons of ore at Carnegie dock, Erie, is about seven hours. In 1893 F. W. Wheeler & Co. built the Merida and S. S. Curry and placed their machinery in about the same position as that of the Maryland. I have never heard of any complaint or regrets from owners of the Merida or Curry.

Inter Ocean Transportation Co.,  
Milwaukee, Wis., June 8, 1896.

J. C. RICKETSON,  
Gen'l Manager,

## Heavy Increase in Lake Superior Business.

SHIPMENTS OF GRAIN, COAL, AND ORE THUS FAR THIS SEASON SHOW ENORMOUS GAINS OVER THE MOVEMENT TO JUNE 1  
IN 1894 AND 1895.

It is certainly remarkable that the shippers of ore, coal and grain on the lakes have crowded a heavy movement of freight into the first two months of the present season of navigation, notwithstanding the depression that is heard of in all other lines of business. This great increase in Lake Superior commerce explains the scarcity of vessels and consequent strong lake freight conditions that have prevailed since the opening. On June 1 of this year more than fourteen million bushels of wheat had been moved from Lake Superior, against less than five millions on the same date in either 1894 or 1895. The movement of soft coal on June 1 amounted to over 400,000 tons, against 44,000 tons in 1895 and 47,000 tons in 1894, and iron ore shipments are 300,000 net tons greater than they were in 1895. It is known also that the ore movement from Escanaba to June 1 is about 100,000 gross tons in excess of what it was on June 1, 1895, so that the total gain in ore shipments from both Lake Michigan and Lake Superior is about 250,000 gross tons. Gains in shipments of principal items of freight to and from Lake Superior are shown in the following table. All 1896 figures have reference to commerce of both Canadian and American canals:

## MOVEMENT OF PRINCIPAL ITEMS OF FREIGHT TO AND FROM LAKE SUPERIOR.

ITEMS.	To June 1, 1896.	To June 1, 1895.	To June 1, 1894.
Coal, anthracite, net tons.....	64,163	48,138	79,531
Coal, bituminous, net tons.....	409,491	44,038	47,424
Iron ore, net tons.....	1,343,284	1,051,129	944,967
Wheat, bushels.....	14,279,954	4,662,390	4,801,490
Flour, barrels.....	1,049,916	1,465,753	1,428,655

The total movement of freight of all kinds to and from Lake Superior to June 1 is 2,746,825 net tons against 1,689,779 net tons on June 1, 1895, or a gain of more than a million tons. The various items making up these totals are shown in the following table:

REPORT OF FREIGHT AND PASSENGER TRAFFIC TO AND FROM LAKE SUPERIOR, FROM OPENING OF NAVIGATION TO JUNE 1  
OF EACH YEAR FOR THREE YEARS PAST.

## EAST BOUND.

ITEMS.	Designation	To June 1, 1896.	To June 1, 1895.	To June 1, 1894.
Copper.....	Net tons.....	25,085	18,892	17,068
Grain.....	Bushels.....	4,275,098	.....	694,568
Building stone.....	Net tons.....	1,907	2,905	2,563
Flour.....	Barrels.....	1,029,916	1,465,753	1,428,655
Iron ore.....	Net tons.....	1,343,284	1,051,129	944,967
Iron, pig.....	Net tons.....	3,083	6,983	4,045
Lumber.....	M. ft. b. m.....	110,816	87,651	88,846
Silver ore.....	Net tons.....	.....	.....	372
Wheat.....	Bushels.....	14,279,954	4,662,390	4,801,490
Unclassified freight...	Net tons.....	17,110	11,844	22,054
Passengers.....	Number.....	1,053	954	866

## WEST BOUND.

ITEMS.	Designation	To June 1, 1896.	To June 1, 1895.	To June 1, 1894.
Coal, anthracite.....	Net tons.....	64,163	48,138	79,531
Coal, bituminous.....	Net tons.....	409,491	44,038	47,424
Flour.....	Barrels.....	62	150	753
Grain.....	Bushels.....	1,109	10,250	500
Manufactured iron .....	Net tons.....	14,894	11,128	3,730
Salt.....	Barrels.....	33,812	59,462	21,718
Unclassified freight...	Net tons.....	59,738	45,377	44,189
Passengers.....	Number.....	930	932	834

## SUMMARY.

	To June 1, 1896.	To June 1, 1895.
East-bound freight of all kinds, net tons.....	2,188,265	1,531,704
West-bound freight of all kinds, net tons.....	558,560	158,075
	2,746,825	1,689,779

The total number of vessel passages to June 1, 1896, was 3,447 and the registered tonnage 3,340,573.

## Death of Stephen B. Grummond.

Stephen B. Grummond of Detroit, who was killed while trying to board a moving trolley car in that city on Friday last, was the second son of the late S. B. Grummond, who was known as a prominent lake vessel owner for a great number of years. For seven years previous to the



death of his father, Stephen B. Grummond, Jr., was engaged as clerk on the Grummond boats, serving on the Flora and Atlantic and later on the State of Michigan. On the death of his father he became manager of the Grummond Mackinac Line and later became sole proprietor of it.

## Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store in regular elevators at the principal points of accumulation on the lakes on June 6, 1896:

	Wheat, bushels.	Corn, bushels.
Chicago.....	14,289,000	5,072,000
Duluth.....	8,508,000	.....
Milwaukee.....	497,000	2,000
Detroit.....	105,000	16,000
Toledo.....	280,000	59,000
Buffalo.....	977,000	170,000
<b>Total.....</b>	<b>24,656,000</b>	<b>5,319,000</b>

As compared with a week ago, the above figures show at the several points named a decrease of 339,000 bushels of wheat and an increase of 373,000 bushels of corn.

Col. Jared A. Smith, United States engineer at Cleveland, has discovered that statistics of lake commerce furnished by collectors of customs are unreliable, and alike to the engineer of the Duluth district, he will endeavor to secure statistics from other sources. He proposes to consult shippers and endeavor to secure the data of which he is in need from them, but he will probably find this an unsatisfactory task. The trouble with customs house statistics on the lakes is their incompleteness, due to defective laws governing the movements of vessels in the coasting trade on the lakes. These statistics are not used by the Lake Carriers' Association. Neither are they used by anybody who understands their defects. The MARINE REVIEW has never used any of them. Changes in the coasting regulations that would bring about reliable statistics are now and have been opposed by vessel owners, who would be put to some little inconvenience in making reports to the government, and this is why the law is not changed.

In a letter to the REVIEW, Capt. A. B. Davis of the revenue cutter Johnson, who has been entrusted with the enforcement of rules governing the navigation of St. Mary's river, says that the rules are being well observed by the majority of vessel masters, but that some do not observe them and are being reported accordingly.

One dollar round trip excursion tickets between Cleveland and Lorain are on sale by agents of the Nickel Plate road.

78 July 31

## Lake Superior Commerce.

In compiling statistics for the Blue Book of American Shipping it was found necessary to go into reports of St. Mary's Falls canal traffic for a great number of years past. The growth of Lake Superior commerce, as represented by the canal statistics, is wonderful. It was found, for instance, that in 1870, twenty-six years ago, less than half a million tons of ore came down from Lake Superior, while in 1895 the movement of ore through the canal exceeded eight millions. Only 16,000 tons of coal passed up through the canal in 1870, against 2,500,000 in 1895, and lumber shipments amounted to less than a million feet against 740,000,000 last year. One of the 4,000 ton ships of today would carry in a single load all of the flour and wheat that was moved through the canal in 1870. The amounts were only 33,000 barrels of flour and 49,000 bushels of wheat. In 1895 there was moved through the canal a little less than nine million barrels of flour and full forty-six million bushels of wheat. The steady increase in leading commodities passing through the canal since 1870 is shown in the following table:

MOVEMENT OF LEADING ITEMS OF FREIGHT THROUGH ST. MARY'S FALLS CANAL DURING TWENTY-SIX YEARS PAST.

Year.	Iron ore, net tons.	Lumber, B. M., feet.	†Coal, net tons	Flour, barrels.	Wheat, bushels.
1870	409,850	722,000	15,952	33,548	49,700
1871	327,461	1,072,000	46,798	26,060	1,376,705
1872	383,105	1,742,000	80,815	136,411	567,134
1873	504,121	1,162,000	96,780	172,692	2,119,997
1874	427,658	638,000	61,123	179,855	1,120,015
1875	493,408	5,391,000	101,260	309,991	1,213,788
1876	609,752	17,761,000	124,734	315,224	1,971,549
1877	568,082	4,143,000	91,575	355,117	1,349,738
1878	555,750	24,119,000	91,856	344,599	1,872,940
1879	540,075	35,598,000	110,704	451,000	2,603,666
1880	677,073	44,539,000	170,501	523,860	2,105,920
1881	748,131	58,877,000	295,647	605,453	3,456,965
1882	987,060	82,783,000	430,184	344,044	3,728,856
1883	791,732	89,131,000	714,444	687,031	5,900,473
1884	1,136,071	122,389,000	706,379	1,248,243	11,985,791
1885	1,235,122	127,984,000	894,991	1,440,093	15,274,213
1886	2,087,809	138,688,000	1,609,999	1,759,365	18,991,485
1887	2,497,713	165,226,000	1,352,987	1,572,735	23,096,520
1888	2,570,517	240,372,000	2,105,041	2,190,725	18,596,351
1889	4,095,855	315,554,000	1,629,197	2,228,707	16,231,854
1890	4,774,768	361,929,000	2,176,925	3,239,104	16,217,370
1891	3,560,213	366,305,000	2,507,532	3,780,143	38,816,570
1892	4,901,132	512,844,000	2,904,266	5,418,135	40,994,780
1893	4,014,556	588,545,000	3,008,120	7,420,674	43,481,652
1894	6,548,876	722,788,000	2,797,184	8,965,773	34,869,483
*1895	8,062,209	740,700,000	2,574,362	8,902,302	46,218,290

\*Coal west-bound; all other items east-bound.

<sup>†</sup>Includes business of Canadian canal, which was about one-half of 1 per cent. of the whole.

## Changes in Lights, Buoys, Etc.

The Canadian marine department has issued a printed notice regarding the new buoys on the east side of the 800-foot dredged channel at the mouth of the Detroit river. The axis of this channel is a straight line joining Detroit river (Bar point) light-house and the Canadian light-house on Bois Blanc island. The seven red wooden spar buoys marking this channel have been in place for some time past, and their location is by this time quite well understood by vessel masters.

The United States light-house service has issued a notice regarding another of the 20-foot channel cuts, that at Grosse point. Day marks and lights on the banks of this channel are also by this time well understood by vessel masters, but any captain wishing a copy of the circular explanatory of them can secure it from collectors of customs or from the light-house board, Washington, D. C. The notice is No. 85, season of 1896.

About June 18, a fixed red light of the sixth order will be re-established in the old pierhead light-tower recently removed to a point on the outer end of the extended north pier, about 950 feet to the eastward of Racine light-house, entrance to the harbor of Racine. The focal plane of the light will be 35½ feet above mean lake level. With Racine light (white) the new light will guide clear to the northward of Racine reef, by keeping the white light open to the northward of the new red light. On the same date the fixed red lantern light now shown at a point about 800 feet to the eastward of Racine light will be discontinued. A fog bell will be established at this station on the same date, to be struck by machinery during thick or foggy weather, a single blow every twenty seconds. The bell is suspended from a frame in front of the pierhead tower.

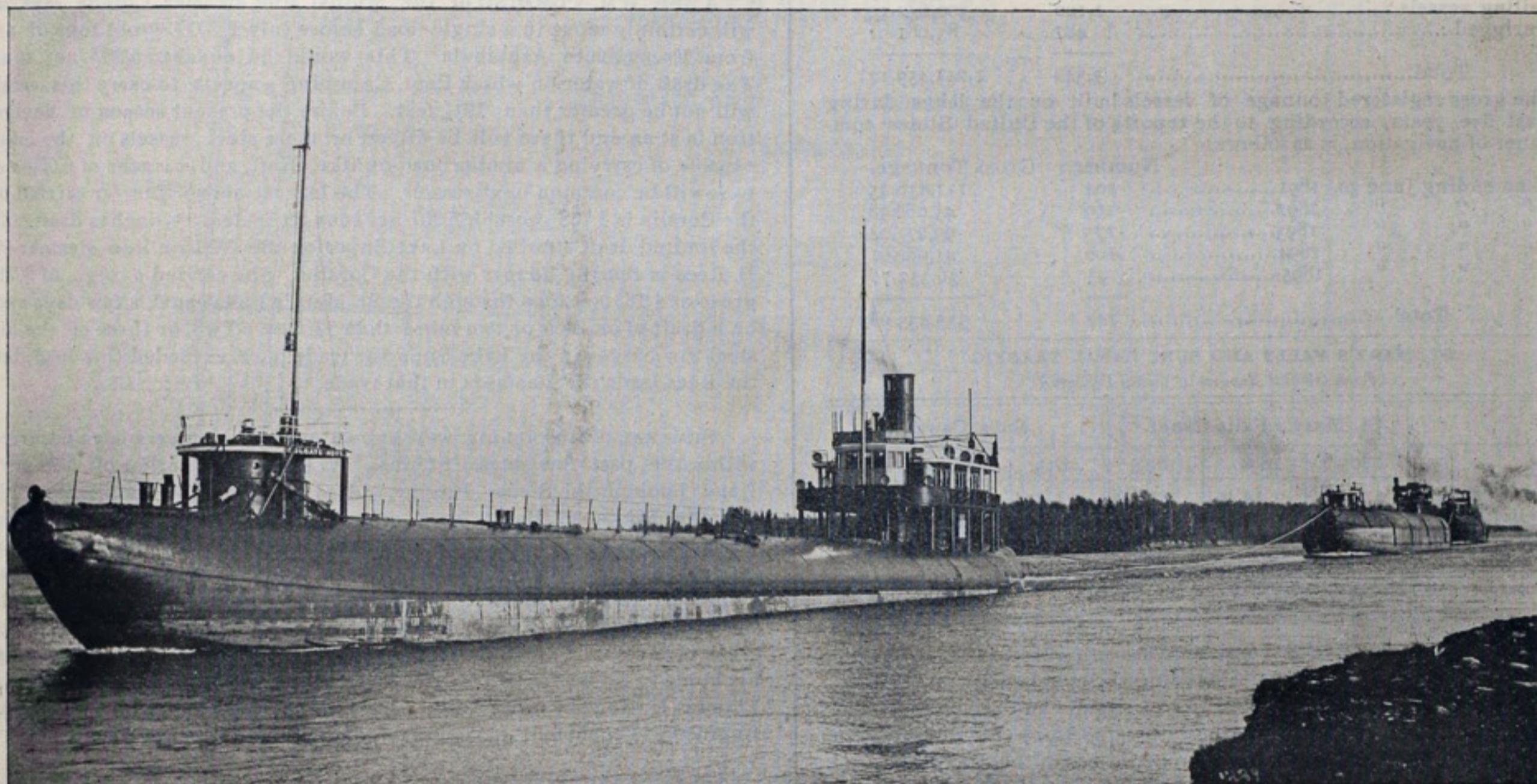
The red second-class nun buoy on the outer shoal, approaches to Port-des-Morts passage, Lake Michigan, has been changed to an automatic bell buoy of the same color.

The important feature of the recent record-breaking trip of the American line steamer St. Paul between Southampton and New York is her average speed for the full distance of 3,113 knots, which was 20.82 knots. The full time from the Needles to Sandy Hook was six days, five hours and thirty-two minutes.

## Ship Yard Matters.

A Detroit correspondent says: "The Frontier Iron Works, builders of the Merida engines, will furnish new engines for the boat, and with the aid of S. F. Hodge & Co., to whom they have sublet about half of the work, they propose to have the steamer ready for service again in about sixty days. The wrecked engines have been removed and the Merida is now at an up-river dock awaiting her new machinery. The Frontier company is fitting new webbs to the low pressure crank shaft of the river steamer Unique, which unfortunate craft broke down again last week. The new webbs are of forged steel, instead of the cast steel ones which gave way. A new wheel is also being made for the Unique, with a view of still further increasing her speed. At the Oades marine railway, the steam yacht Cynthia, built last season by the Detroit Boat Works, is up for painting, etc. A new pipe boiler has just been fitted to the Cynthia by Deering of this city. At the works of the Detroit Dry Dock Co. the side-wheel steamer City of Toledo is being fitted with new after guards, to protect her wheels when making landings. The schooner Ashland is at the shears in the same yard for new main and mizzen masts and other repairs and the steamer Marquette is in dock. The latter vessel is getting bottom repairs, a new forefoot, caulking, etc., and with new boiler and rebuilt machinery she will very probably give a good account of herself for some time to come."

at the works of the Union Dry Dock Co., Buffalo, in about ten days is a more substantial vessel than it was thought she would be when the work of constructing her was begun. She is entirely suited to ocean voyages and will rank among the finest yachts as yet constructed on the lakes. The Enquirer is 144 feet long, 17½ feet beam and 10 feet hold. She has a triple expansion Hodge pattern engine, 10½, 17½ and 27 inches by 16 inches stroke. Steam will be generated in a Taylor water tube boiler with 2,200 square feet of heating surface, the grate surface being 50 square feet. The contract is for a speed of eighteen miles an hour, and if the boat does not considerably exceed that speed the builders will be disappointed. The wood work of the yacht is of the best, consisting of mahogany above deck and curly birch inside except that the owner's room, which is finished in bird's-eye maple. The crew's quarters, galley and steward's supply room are all forward and are finished in Georgia pine, left natural color. The guests' cabin will be ample and the berths sufficient to accommodate a large party. The space under the berths is provided with large galvanized iron tanks for storing fresh water for culinary purposes. All quarters below are well lighted by skylights and by a beautiful pattern of brass side lights, which were made especially for the boat. The deck is of Washington pine and the rail is of Georgia pine, with a rope netting and pipe stanchions forming the top-gallant rail. There are two spars, but no sails, and the whole deck is fitted with awnings from end to end. All finishings are of brass. The boat will be steered by a Snelling patent



WHALEBACK STEAMER COLGATE HOYT AND TOW OF TWO BARGES.

(This steamer's barges were ashore during the past week on a sand beach at Chequamegon point, Lake Superior.)

Matters in the ship yard of the Detroit Dry Dock Co. at Wyandotte are being arranged for the launching of the big steel steamer Senator on Saturday, the 13th. The Senator is one of the steamers of the 400-foot type and will be owned by the Wolverine Steamship Co., of which John B. Roby is president and in which Senator McMillan and other stockholders of the dry dock company are interested. The steamer will be managed by Capt. M. W. Humphries. She is 420 feet long over all, 400 feet keel, 45 feet beam and 28 feet deep, and will be propelled by a triple expansion engine with cylinders 22, 35 and 60 inches in diameter by 44 inches stroke. It is expected that on 16 feet draft she will carry about 4,800 gross tons of ore and that with this load her engines, which are of 1,400 horse power, will drive her at the rate of 13 miles an hour. A feature in this boat is a patent anchor in the extreme stern. This is to be used in case of emergency in the "Soo" river and other narrow channels when through current or the influence of a passing vessel control of the big steamer is lost and she begins to swing so as to bring her into dangerous proximity to another boat or to a rock or dock. She will carry one smokestack, two short spars forward of this, will be fitted with Howden hot draft, and will have a complete electric lighting plant, search light, full handling equipment, telephones to connect the master or pilot with distant parts of the ship, etc. Alike to other big coarse freight carriers of her kind, she will have no deck house or in fact anything between the boiler house and Texas excepting the deck engines. The Senator will be sailed by Capt. E. B. McQueen, who has been in the Mariana, S. S. Curry, Geo. F. McWilliams, John F. Eddy and other steamers.

W. J. Connors' steel steam yacht Enquirer, which will be completed

yacht steerer situated in the pilot house on the deck house forward. The electric lighting plant is suited to operate 400 lights of sixteen candle power. Outwardly the yacht is a steel hull with mahogany upper works, the wood natural color and the metal painted white above and red below water, with a green water line.

The new Wilson line steamer, which is to be built by the Cleveland Ship Building Co. for service in the spring of 1897, is to be 5 feet longer and 3 feet wider than the steamer W. D. Rees, owned by the same line, and which has proven a very large carrier. It is probable also that the new boat will have three boilers. The Rees has but two boilers.

Time for completion of the first-class revenue cutter under way at the ship yard of the Globe Iron Works Co., Cleveland, has been extended from June 30 to Sept. 1. When work was first begun on this steamer there was great delay in securing material.

George B. Raser is the name selected for M. A. Hanna & Co's steam fuel lighter, recently built at Ashtabula. The craft is of 369.54 tons gross and 258.74 net.

A double launch of a pilot boat and a small passenger steamer at the yard of the Newport News (Va.) company a few days ago was marred by the capsizing of the pilot boat, owing to all those on board getting on one side causing the cradle to spread when she gradually filled and went down. Four lives were lost. The pilot boat is 118 feet and the passenger steamer 140 feet in length. The pilot boat was readily raised and was found to be uninjured.



## DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 409 Perry-Payne building, Cleveland, O  
by John M. Mulrooney and F. M. Barton.

SUBSCRIPTION—\$2.00 per year in advance. Single copies 10 cents each. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

Entered at Cleveland Post Office as Second-class Mail Matter.

The books of the United States treasury department on June 30, 1895, contained the names of 3,342 vessels, of 1,241,459.14 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1895, was 360 and their aggregate gross tonnage 643,260.40; the number of vessels of this class owned in all other parts of the country on the same date was 309 and their tonnage 652,598.72, so that half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1895, was as follows:

Class.	Number.	Gross Tonnage.
Steam vessels.....	1,755	857,735.13
Sailing vessels.....	1,100	300,642.10
Unrigged.....	487	83,081.91
<b>Total.....</b>	<b>3,342</b>	<b>1,241,459.14</b>

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30, 1891.....	204	Gross Tonnage.
" " " 1892.....	169	45,968.98
" " " 1893.....	175	99,271.24
" " " 1894.....	106	41,984.61
" " " 1895.....	93	36,352.70
<b>Total.....</b>	<b>747</b>	<b>335,433.98</b>

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.  
(From Official Reports of Canal Officers.)

	St. Mary's Falls Canal.			Suez Canal.		
	1895.*	1894.	1893.	1895.	1894.	1893.
No. vessel pass'ges	17,956	14,491	12,008	3,434	3,352	3,341
T'n'ge, net registd	16,806,781	13,110,366	9,849,754	8,448,246	8,039,175	7,659,068
Days of Navigat'n	231	234	219	365	365	365

\* 1895 figures include traffic of Canadian canal at Sault Ste. Marie, which was about  $\frac{1}{2}$  per cent. of the whole, but largely in American vessels.

THE HOUSE committee on commerce has submitted a report favorable to the Nicaragua canal, notwithstanding the conclusions of the commission appointed by the president to investigate and report upon the canal project. The report of the committee questions the reliability of estimates made by the commission on unit prices of the canal work and quotes various statements of engineers to disapprove the findings of the commission. The report says that the questions of the feasibility and permanence of the canal have been definitely settled in the affirmative. Regarding the question of cost the report says that to have charged the railroad system of this country, in its incipiency, with the cost of the heavy superstructure and equipment now in use would have been injurious. Whether the depth of canal and harbor shall be 30 feet at the outset, whether four locks shall be used instead of three, whether the water elevation should be 110 feet instead of 106, and other differences between the commission and the company are said to be details depending on whether the policy of making provision for all demands in all time to come is adopted. Owing to the testimony on unit prices the report reduces the estimates of cost on the basis of the commission's plans from \$133,000,000 to \$102,000,000, but holds that \$100,000,000 will be an ample appropriation.

EDITOR WATSON of the *Engineer*, New York, shows another bilious attack editorially in his last issue. His semi-monthly review of reminiscences for the "old guard" does not require a great deal of hustling, and he has been given the field in this kind of trade journalism all to himself. It is a little strange, therefore, that he should appear wrathful and disappointed because the REVIEW furnished up-to-date information regarding the passage of the engineers' bill and was highly complimented by one of the officers of the national organization of engineers for its enterprise. But even in matters of ancient history it is amusing to see the position in which Mr. Watson sometimes places himself by claiming to know it all. He has questioned some statements made by Mr. Thomas Fitzpatrick regarding the speed of the old Lake Erie steamers Western Metropolis and City of Buffalo. In this connection it is only necessary

to note that Mr. Fitzpatrick erected the engines in the Western Metropolis and was chief engineer of her, while Mr. Watson's knowledge of the vessels was limited to that of an apprentice helping the engineers who erected the City of Buffalo's engines. He also served as greaser on the City of Buffalo for one season.

IT IS PLAINLY evident from a review of lake commerce up to the first of the present month, published elsewhere in this issue, that the disposition among grain, ore and coal shippers, especially the latter, has been to forward a large part of their product early in the season, in order to avoid, as much as possible, great losses on high freights such as prevailed towards the close of last season. More than fourteen million bushels of wheat has been moved from Lake Superior as compared with about four millions on June 1 a year ago. The ore movement from all points in the mining region is about a quarter of a million tons in excess of the shipments at this time a year ago, and more than 400,000 tons of soft coal has gone to Lake Superior, against little more than 40,000 tons on June 1 of either 1895 or 1894. It is not surprising, therefore, that the lake freight market is weak at this time and that conditions indicate a quiet market for June and July. It is the general belief, however, that large ore purchases must be made later on and that the closing months of the season will be the most profitable months for vessel owners, although no boom of the kind that prevailed last year is expected.

CAPT. WM. CUMMING of the Mutual line steamer *Coralia* says he will certainly move in a single load before July 1, 5,000 gross tons of ore from Escanaba to Ashtabula. This would be equal to 5,600 net tons. The draft of water on which Capt. Cumming expects to carry this cargo will not be greater than 16½ feet. Before the present season of navigation is at an end there will be fifteen or more steel vessels on the lakes capable of carrying a similar load on like draft, and cargoes of 6,000 net tons will be common next season. The largest cargo thus far carried by the *Coralia* is 4,738 gross or 5,307 net tons on 16 feet 1½ inches draft. In the limited draft afforded on Lake Superior the Wilson line steamer W. D. Rees is sharing honors with the *Coralia*. She carried a cargo of 3,717 gross or 4,163 net tons through the St. Mary's Falls canal, a few days ago, on a draft of an inch or two more than 14 feet. Two or three of the big steel tow barges in the Lake Superior trade have exceeded this load, but the Rees leads the steamers in that trade.

SEVERAL deaths among well-known marine engineers have occurred within the past few days. Stephen W. Roper, the author of "Roper's Hand Book of the Steam Engine," died suddenly of apoplexy at his home in Roxbury, Mass., aged seventy-three. From New York, the death of John C. De la Vergne is announced. He was the inventor of refrigerating machinery that is in use in some of the largest passenger ships built in this country. Thomas Main, who was with John Roach, the ship builder, for a great number of years, and who designed the engines of several of the best steamers built by Mr. Roach, passed away at his home in Arlington, N. Y., on May 27. On the same day the death of Thomas H. Nelson, one of the past national presidents of the Marine Engineers' Beneficial Association was announced from St. Louis.

THERE is likely to be considerable shifting around of officers of the army engineer corps within the next few months. Changes of stations are expected to grow out of the enactment of the river and harbor bill and the fortifications bill. It is the desire of Gen. Craighill, chief of engineers, to so combine the engineering and fortifications work as to permit of his present force of officers performing the work without much extra labor. For this reason it is probable that he will extend the work of some officers and make several changes of stations. The academic board, it is expected, will be liberal in assigning at least five cadets to the engineer corps, in accordance with an intimation that has gone to Col. Ernst, that no less than this number should be assigned to the corps. There are no vacancies in the corps, and the graduates will have to enter it as additional second lieutenants.—Army and Navy Journal.

DIRECTORS and officers of the Wm. Cramp & Sons Ship and Engine Building Co., Philadelphia, recently elected, are: Directors—Charles H. Cramp, Henry W. Cramp, Thomas Dolan, Clement A. Criscom, Henry Seligman, William H. Barnes, Samuel Dickson, Ernest Thalman and Morton McMichael. Officers—President, Charles H. Cramp; vice-president and treasurer, Henry W. Cramp; secretary and auditor, John Dougherty; assistant secretary and treasurer, Theodore W. Cramp.

TWO NEW CHARTS OF THE ST. MARY'S RIVER, FROM ENTRANCE TO MUD LAKE TO POINT IROQUOIS, INCLUDING HAY LAKE CHANNEL, RECENTLY ISSUED BY THE WAR DEPARTMENT, MAY BE HAD FROM THE MARINE REVIEW AT 35 CENTS EACH.

One dollar round trip excursion tickets between Cleveland and Lorain are on sale by agents of the Nickel Plate road.

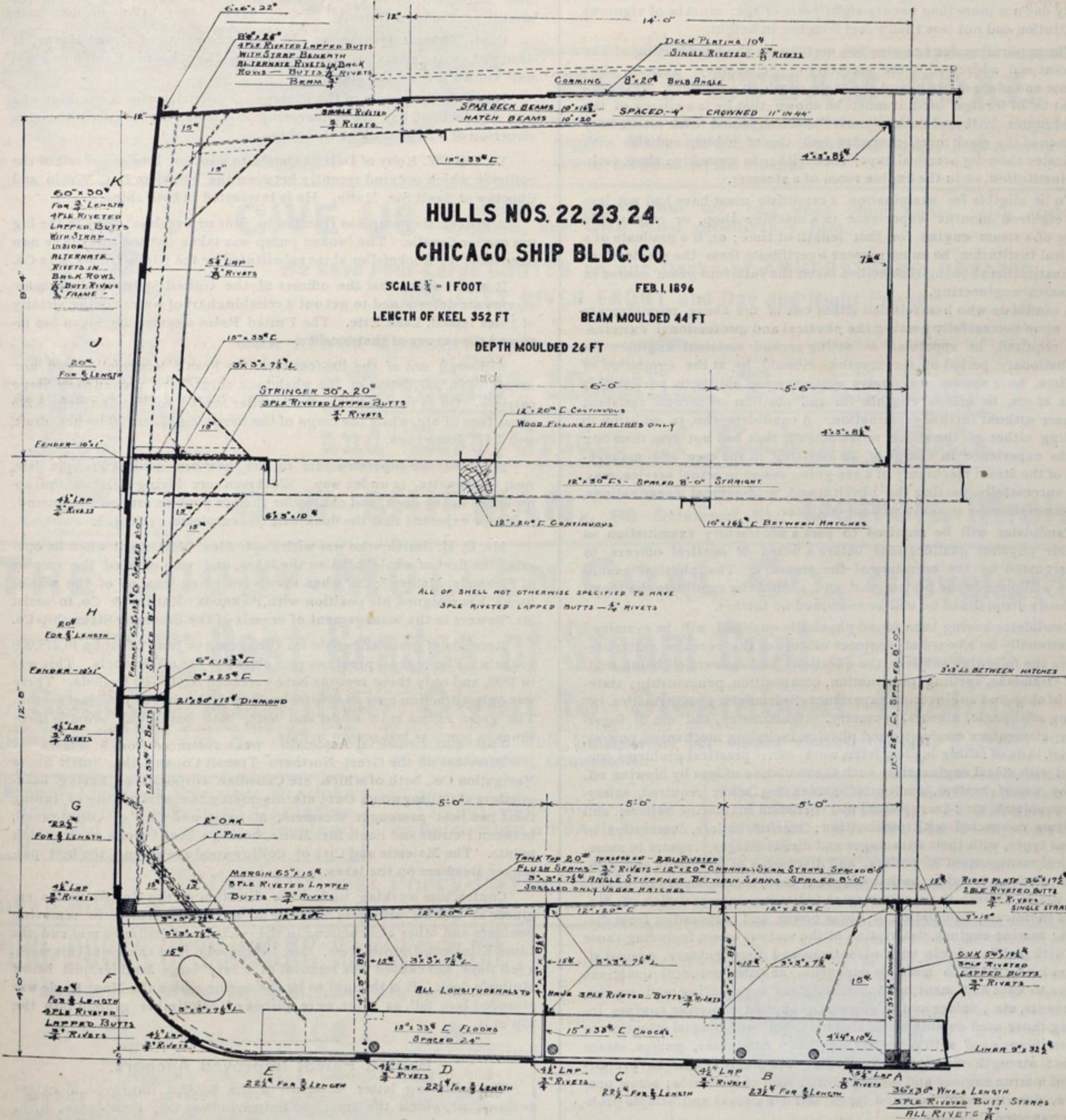
78 July 31

## Rockefeller Ships.

DESCRIPTION OF TWO STEEL TOW BARGES BUILDING AT THE WORKS OF THE CHICAGO SHIP BUILDING CO., SOUTH CHICAGO, ILL.

Three steamers of the Rockefeller fleet have been described in our issues of April 30 and June 4, and there is presented on this page a cross section of the two steel tow barges (duplicates), which are building at the works of the Chicago Ship Building Co., South Chicago, Ill. These vessels will be of the following dimensions: Length of keel, 352 feet;

windlass deck. Aft is a steel deck house, with steel pilot house on top, containing rooms for captain, mate, engineer and steward. The dining room and galley are to be on the main deck aft; also the boiler room, steering engine, ballast pump and an electric plant of 150 lights capacity. These vessels will have three spars and four sails. There is to be on each vessel a Providence steam windlass and capstan forward and Providence steam capstans aft and amidship; a donkey boiler built by the Lake Erie Boiler Works of Buffalo and a Williamson steam steerer, with auxiliary steam wheel forward for use in ports and rivers. The electric plants



length over all, 368½ feet; breadth of beam, moulded, 44 feet; depth, moulded, 26 feet; depth of water bottom, 4½ feet. There are two watertight and two cargo bulkheads. The vessels are built on the channel system, and they are of the basic open hearth steel throughout. The forecastle deck forward is raised to the level of the main rail, with windlass deck below, in the manner first followed by the Chicago Ship Building Co. The towing machine forward is in a halfhouse projecting through the forecastle deck. Deckhands' and dunnage rooms are all on the

are to be put in by the builders, using the General Electric Co's direct connected generating sets.

Extensive alterations and additions are being made to the plant of the Glen Falls Paper Co., and on all new buildings roofs are to be supported by steel trusses, to be furnished by the Berlin Iron Bridge Co. of East Berlin, Conn. New buildings include a machine room 67 by 217 feet; a machine room 52 by 167 feet; a finishing room 50 by 100 feet, and two boiler houses of somewhat smaller dimensions.

### Engineers in the Revenue Cutter Service.

Now that the revenue cutter service is about to come into possession of several first-class steamers, both on the lakes and the coasts, it has been found necessary to issue, in circular form, the rules governing the appointment of second assistant engineers. No person will be originally appointed to a higher grade than that of second assistant. Applicants may obtain the necessary blank forms, notice of time of examinations, etc., by addressing the secretary of the treasury at Washington. The rules are as follows:

Candidates must be citizens of the United States and not be less than twenty-one nor more than twenty-eight years of age; must be of vigorous constitution and not less than 5 feet 3 inches in height.

The application for examination must be in the handwriting of the applicant and addressed to the secretary of the treasury. It must state the date and place of birth, and the state of which a resident. If the applicant be of foreign birth it must be shown that he is a citizen of the United States. All applications must be accompanied with satisfactory evidence of the good moral character and correct habits, and also with certificates showing practical experience either in a machine shop, technical institution, or in the engine room of a steamer.

To be eligible for examination, a candidate must have had not less than eighteen months' experience in a machine shop, or responsible charge of a steam engine for that length of time; or, if a graduate of a technical institution, he must present a certificate from the president of such institution showing that he has taken the full four years' course in mechanical engineering.

A candidate who has fulfilled either one of the above requirements may, upon successfully passing the physical and professional examinations required, be appointed an acting second assistant engineer for a probationary period of six months. Should he, at the expiration of that time, have shown progressive efficiency and ability to perform his duties at sea, he will be eligible for the position of second assistant engineer without further examination. A candidate who, in addition to fulfilling either of the above requirements, has had not less than six months' experience in charge of, or assisting in the care and management of the steam machinery of a sea-going vessel in actual service, may, upon successfully passing the physical and professional examinations, be commissioned a second assistant engineer.

Candidates will be required to pass a satisfactory examination as to their physical qualifications before a board of medical officers, to be designated by the secretary of the treasury. The physical examination will precede the professional, and should the candidate be found physically disqualified he will be examined no further.

Candidates having been found physically qualified, will be examined professionally by a board of engineer officers of the revenue cutter service, in the following subjects, the questions and answers all being written: Grammar, spelling, punctuation, composition, penmanship; statement of shop and engineering experiences; elementary mathematics, including arithmetic, algebra, geometry, trigonometry, and use of logarithms; elementary mechanics and physics, including mechanical powers, friction, laws of falling bodies, force, work, etc.; practical problems connected with steam engineering, such as calculation of loss by blowing off, gain by use of heaters, amount of condensing water required, safety-valve problems, etc.; incrustation and corrosion in marine boilers, and problems connected with combustion; marine boilers, description of various types, with their advantages and disadvantages, repairs to same, practical management of boilers, and discussion of accidents and difficulties, such as foaming, back draft, etc.; heat, steam, theory of expansion, use of steam; the steam engine indicator, interpretation of diagrams therefrom, calculation of horse power and evaporation from diagrams; marine engines, description of the various types, including those used with paddle wheels, with advantages and disadvantages, special attention being given to multiple expansion engines, practical questions relative to care and manipulation of engines, overhauling and repairs, alignments, etc.; valves and valve gears as applied to marine engines, including those used on side wheel steamers, but with special attention to modern types used with propeller engines; condenser, pumps, steam gauges; strength of materials, including simple problems in proportions of marine engines and boilers; inspection of materials; screw propellers, description of common types and definitions and simple problems connected therewith.

The professional examination will be competitive, and all candidates who pass the minimum standard required will be placed upon the list eligible for appointment in the order of proficiency exhibited by them, respectively, in the examination. From this list appointments will be made in regular order, as vacancies occur, until another examination is held.

The standard of proficiency has been fixed at 75 per cent., and candidates failing to obtain that average will be rejected. They may, however, if otherwise qualified, take a second examination at the next con-

vening of the board of examiners. Failing in two examinations will result in the final rejection of the candidate.

Any person producing a false certificate of age, time of service, character, or making a false statement to the board of examiners, shall be disqualified for appointment; and any person who, subsequent to his examination, may become disqualified from moral considerations, will not be appointed.

### Around the Lakes.

Letters for E. D. Butler, John Bieth, James Green, C. B. Hatch, William McDonald, John C. McClellan and Alfred Taylor are held in the marine post office a Detroit.

Capt. Thomas Quayle, an old time vesselman of Grand Haven, is dead at Los Angeles, Cal. He commanded the schooner Evelyn and was well known around the lakes.

Now it is the people of the Portage lake district who are talking of a new dry dock. They are endeavoring to interest capitalists in the construction of a large dock at Houghton.

Dr. Geo. W. Roby of Detroit stands to win and lose as a result of the collision which occurred recently between the steamers L. C. Waldo and Choctaw at Sault Ste. Marie. He is interested in both ships.

A broken air pump has resulted in four or five days' delay to the big ore carrier Coralia. The broken pump was taken out and one of the new ones built for Rockefeller ships substituted by the Globe Iron Works Co.

It would seem that the officers of the United States hydrographic service are determined to get out a reliable chart of waters in the vicinity of Pelee island, Lake Erie. The United States steamer Michigan has resumed the survey of that locality.

Although not of the 400-foot type, the Frank Rockefeller and her consort, No. 137, latest of the whaleback ships, have proven very large carriers. On 14 feet draft the Rockefeller loaded on her first trip, 3,225 gross tons of ore, while the cargo of the barge, on 13 feet 10 inches draft, was 3,471 gross tons.

A part of the superstructure on the new ore dock at Presque Isle, near Marquette, is under way. Workmen are laying rails on the approaches to the dock, and chutes for the ore pockets are on the ground. It is now expected that the dock will be completed by Aug. 1.

Mr. E. H. Smith, who was with Capt. Alex. McDougall when he operated the fleet of whalebacks on the lakes, and who entered the employ of Pickands, Mather & Co. when they were given charge of the whalebacks, has resigned his position with Pickands, Mather & Co. to assist Mr. Bowers in the management of vessels of the Bessemer Steamship Co.

Receipts of grain at Buffalo for the season to June 1 foot up 46,378,000 bushels. The highest previous year shows 33,638,000 bushels. This was in 1892, and only three seasons have exceeded 30,000,000 bushels. There was only a fraction over 24,000,000 bushels to the first of June last season. The great excess is in wheat and oats, both being well towards three times as much as last season to date.

Directors of the Great Northern Transit Co. and the North Shore Navigation Co., both of which are Canadian corporations having headquarters at Collingwood, Ont., are discussing the advisability of running their two best passenger steamers, Majestic and City of Collingwood, between Detroit and Sault Ste. Marie, having a boat twice a week at both points. The Majestic and City of Collingwood are among the best passenger steamers on the lakes.

Contractors working under the direction of the United States engineer at Detroit are again steadily at work this season in removing boulders and other obstructions in the vicinity of Ballard's reef and the Lime-Kilns cut, Detroit river. Mr. Dixon, who is in charge of this work, a few days ago caused the removal of a very large boulder, just below Mullen's dock. It is thought to be the one on which the Mont Eagle was stranded last fall, as there were pieces of oak timber ground into the top of it.

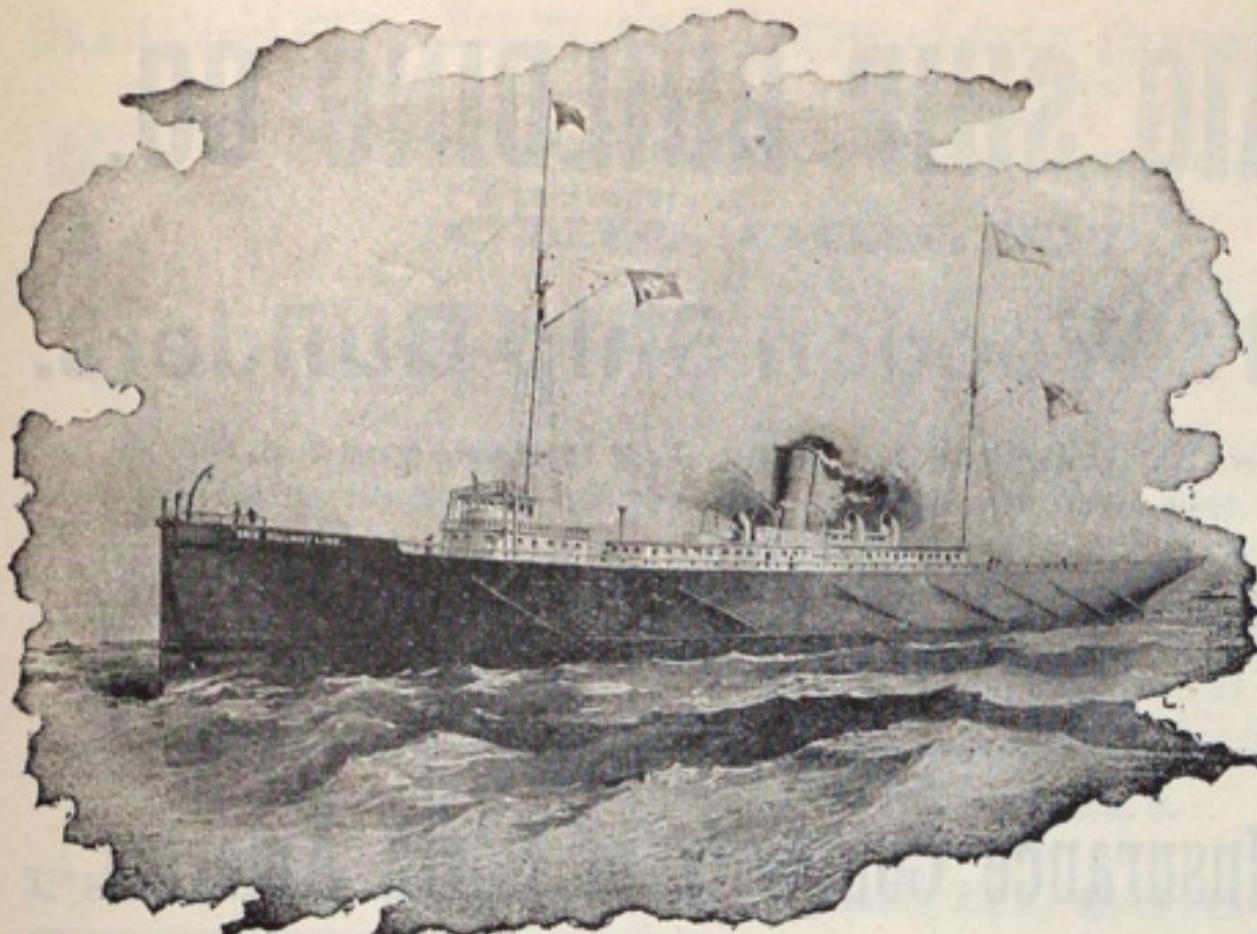
### Babbitt Patent Improved Anchors.

The following letter in regard to the Babbitt improved stockless anchors, of which the American Ship Windlass Co., Providence, R. I., are the sole manufacturers, is a very valuable endorsement of the merits of these anchors, particularly coming from so high an authority as Linden W. Bates of Chicago:

American Ship Windlass Co., Providence, R. I.—Dear Sirs: After a thorough trial of your anchors on the dredge Beta on the Mississippi river, I am pleased to testify to their great superiority over any others we used. You will find reports of the dredge in the Engineering News of April 23, 1896. Get it. Send receipt for draft to cover expense of anchors.

Washington, D. C., June 5, 1896.

LINDEN W. BATES.



## Rapid Fueling Docks, DETROIT RIVER.

JAMES GRAHAM, Foot Twenty-first St., Detroit,  
Below Routes of Passenger and Car  
Ferry Lines.

Pockets and Chutes arranged for different types of vessels.

### BEST STEAM COAL.

Large Supplies and every effort to give dispatch, day and night. Wide stretch of river for tows, and plenty of water at dock at all times.

### GIVE US

a chance to prove that we can coal your boats with quick dispatch, and with most satisfactory fuel.

We have Four Large CHUTES on our Docks at AMHERSTBURG, ONTARIO,  
1,000 FEET RIVER FRONT and Day and Night Force.

OUR STOCK CONSISTS OF

"Keystone" Massillon, Youghiogheny,  
and Best Grades of Hocking Koals.

O. W. SHIPMAN, <sup>MAIN OFFICE,</sup> 90 Griswold St., Detroit, Mich.

Keeping a sharp look-out for  
Shipman's Koal Dock.

## THE CUDDY-MULLEN COAL Co., Cleveland.

DEALERS  
IN

### Best Grades of Steam Coal.

### Special Attention Given to Steamboat Fueling.

SHIPPING DOCK with Car Dumping Machine and Full Equipment for Rapid Fueling within Eastern Arm of Breakwater, Cleveland.

Steam Lighters Carrying Drericks and Large Buckets in Operation Day and Night within Cleveland Harbor.

Pocket Dock now under construction on Sault River.

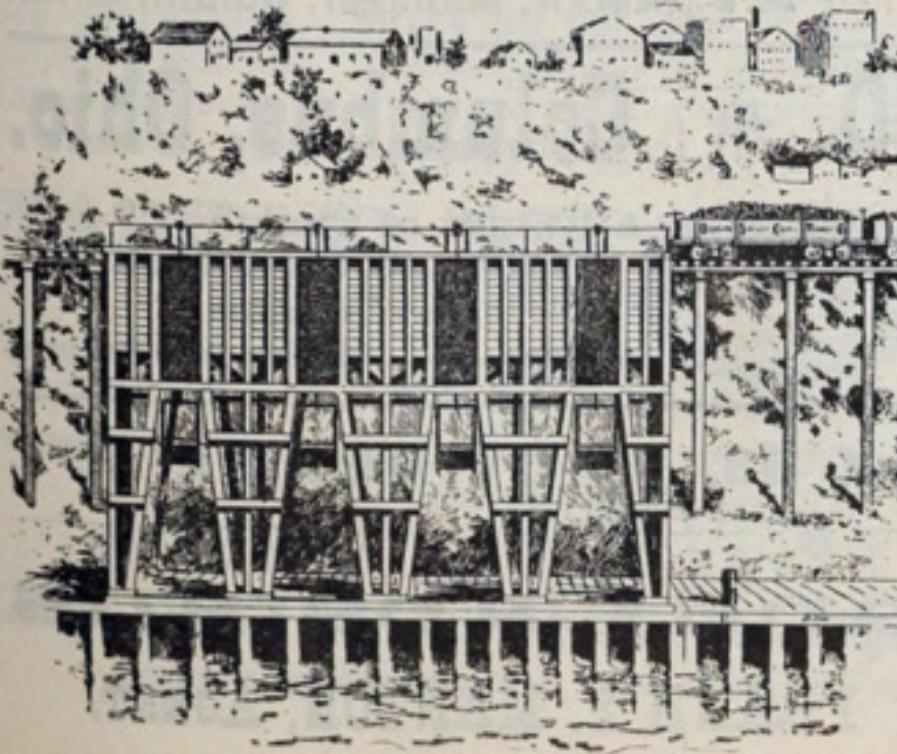
POCKET DOCK AT SANDWICH ON DETROIT RIVER, FORMERLY OWNED BY MULLEN & GATFIELD.

Main Offices: Perry-Payne Building, Cleveland, O. Telephone No. 8.

RIVER DOCK, West River Street. Telephone 1441.

## FUEL DOCKS OF OSBORNE, SAEGER & CO.

Cuyahoga River, just above Superior St. Viaduct, Cleveland, O.



Best  
Youghiogheny  
Steam Coal  
Furnished  
Day or Night.  
No delay as  
Elevated  
Pockets  
are used.



## COLUMBIA MFG. CO.

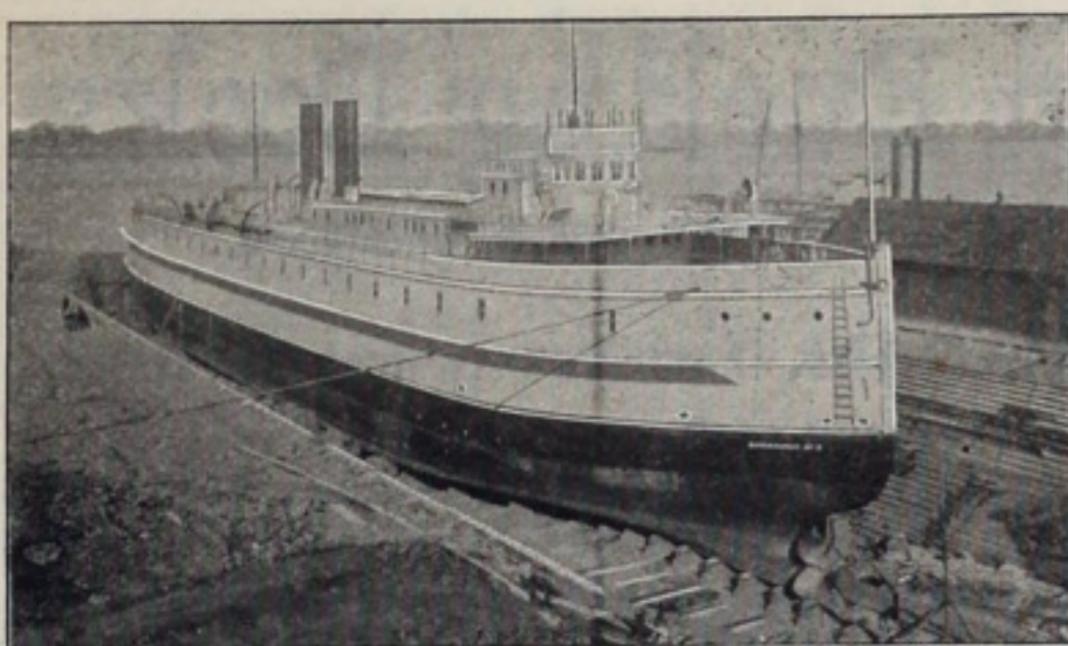
Manufacturers of

### METAL POLISH, \* BUFFING COMPOSITIONS.

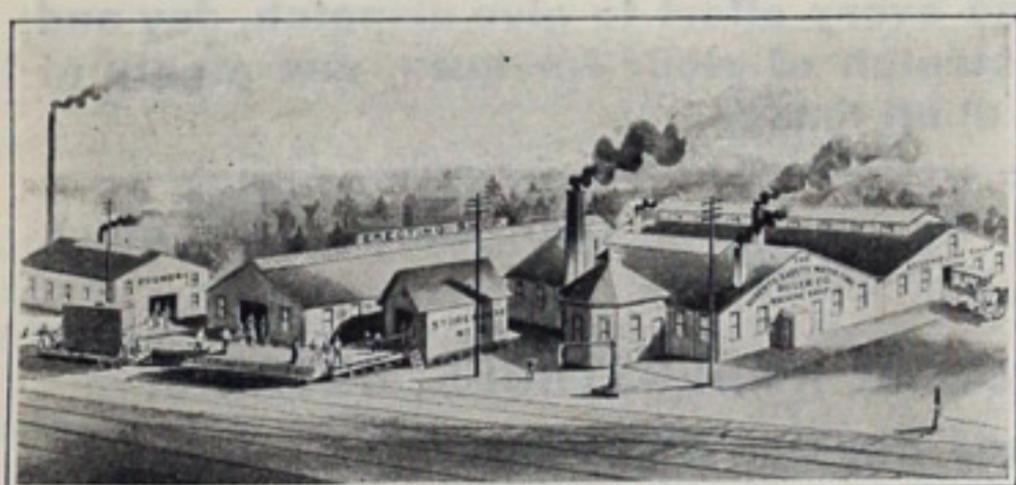
A great labor saver.  
Especially adapted for Marine Engines.  
1 lb. tin boxes, 45 cents; 5 lb. pails, \$1.50.

94 Holmden Ave., CLEVELAND, O.

John Thompson, 123 River St., Agent, Cleveland, O.



Shenango No. 2, 300 feet long, 54 feet beam.



Chicago, Jan. 13, 1896.

THE ROBERTS  
BOILER CO.

Gentlemen: I cannot see but that the boiler in the "Mamie C" is just as good as it ever was, even if it is 17 years old. I had no complaint from it last summer.  
Yours truly,  
A. E. CLARK.

THE ROBERTS BOILER is the Cheapest, Best and Lasts Longest  
Adapted for use in Yachts, Launches, and Vessels of all Kinds.

Handsome Illustrated Circular sent free on application to

The Roberts Safety Water Tube Boiler Co.,  
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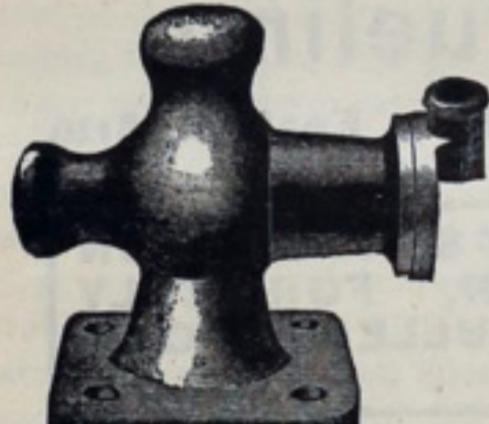


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Solid Gold. Ship-shape in every detail.  
Send for Descriptive Circular.

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## Enos Combined Bitt, Winch and Sheet Holder.



Patented in the United States,  
England and Canada.

Takes the place of wooden or iron bitts and forms a Combination Bitt and Winch. Takes up less room than the ordinary bitt. Can be used to great advantage as a Windlass or Sheet Holder on Yachts. An examination will convince you of the many uses to which it can be put.

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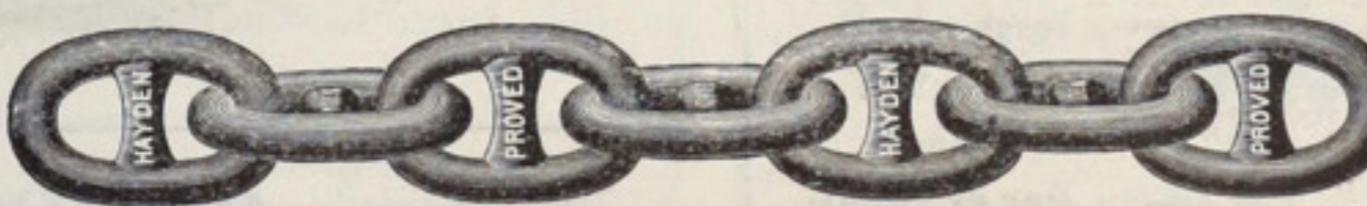
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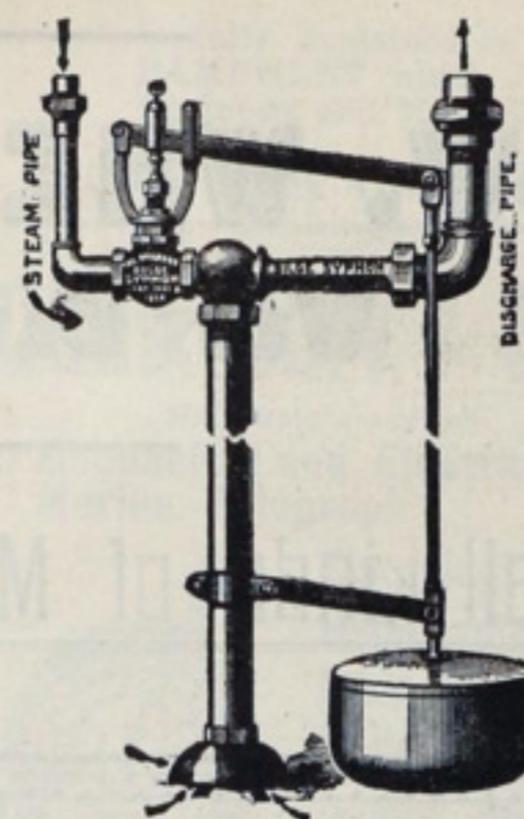
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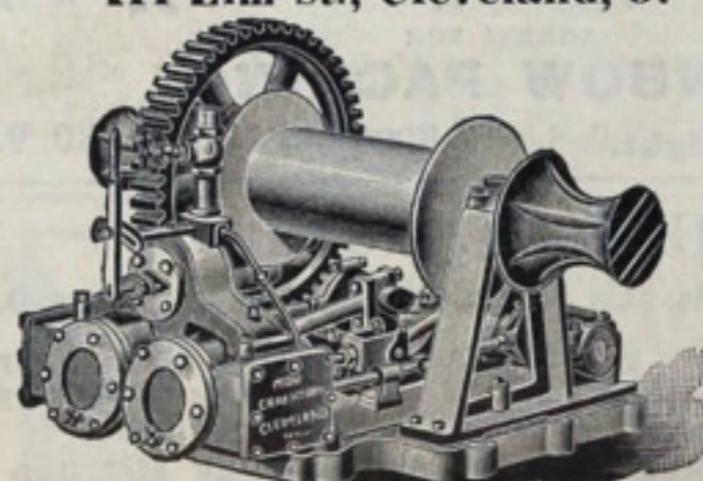
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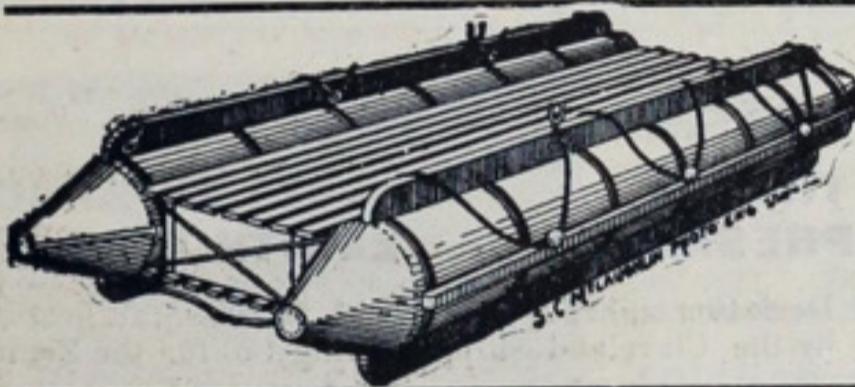
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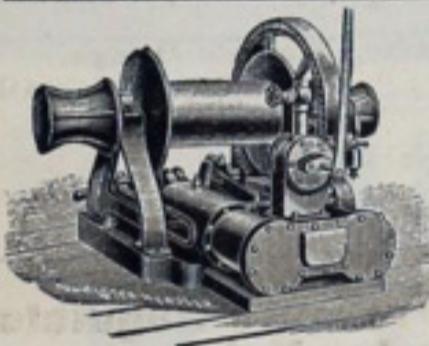
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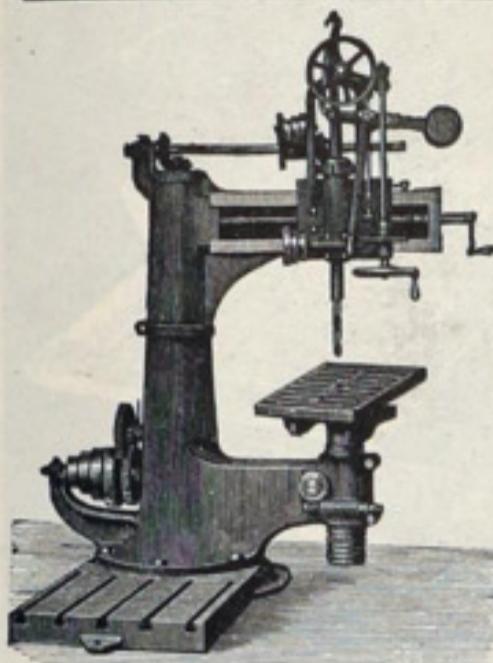
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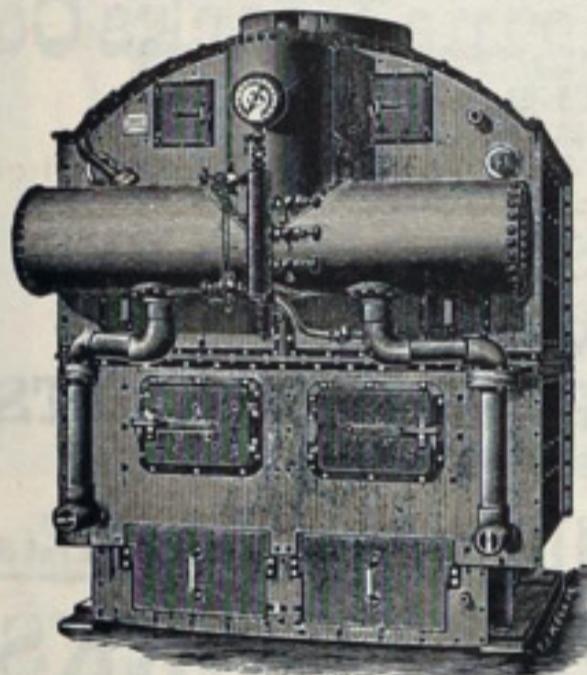


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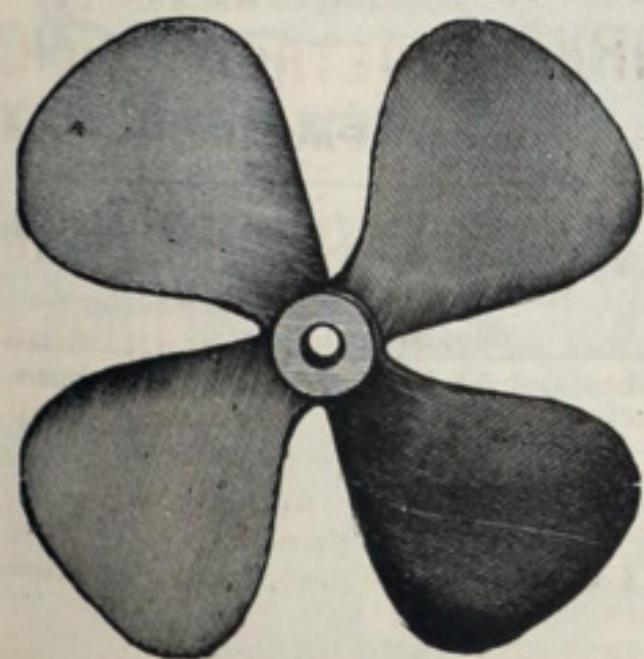
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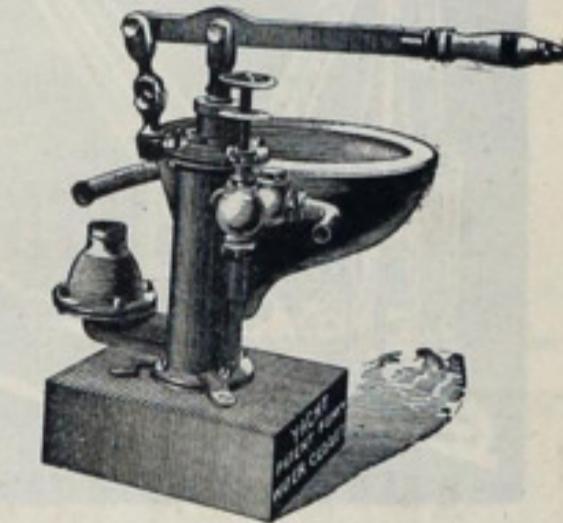
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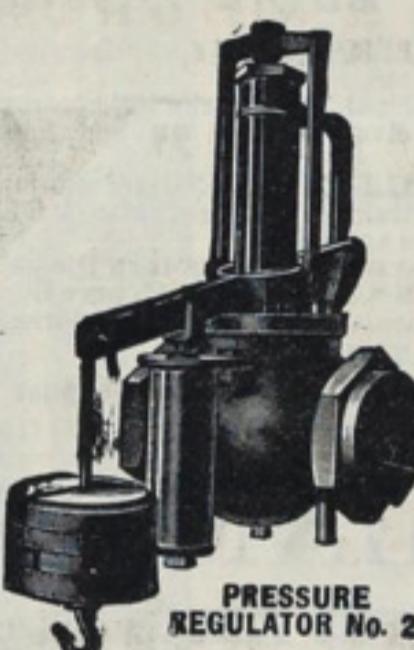
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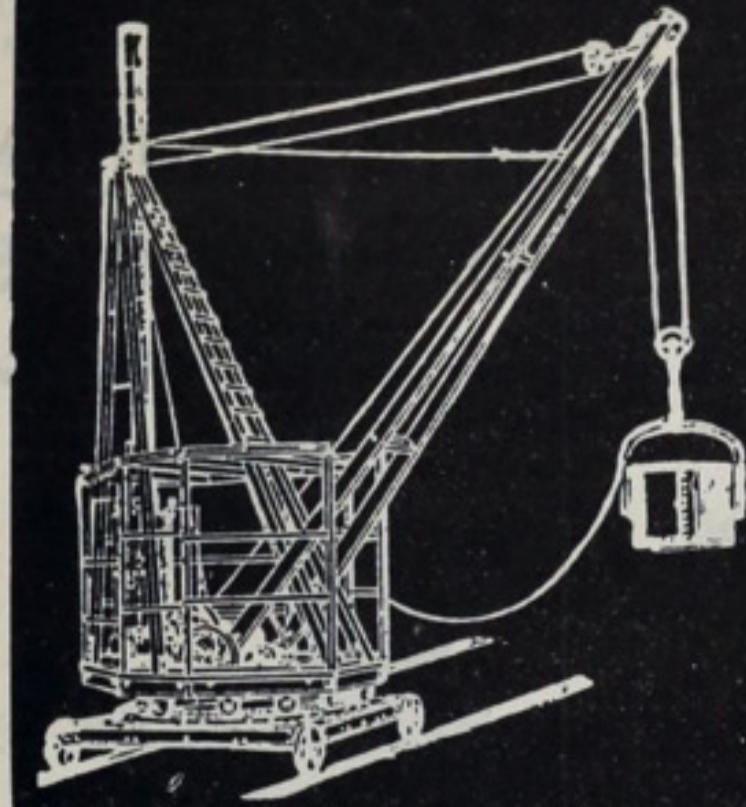
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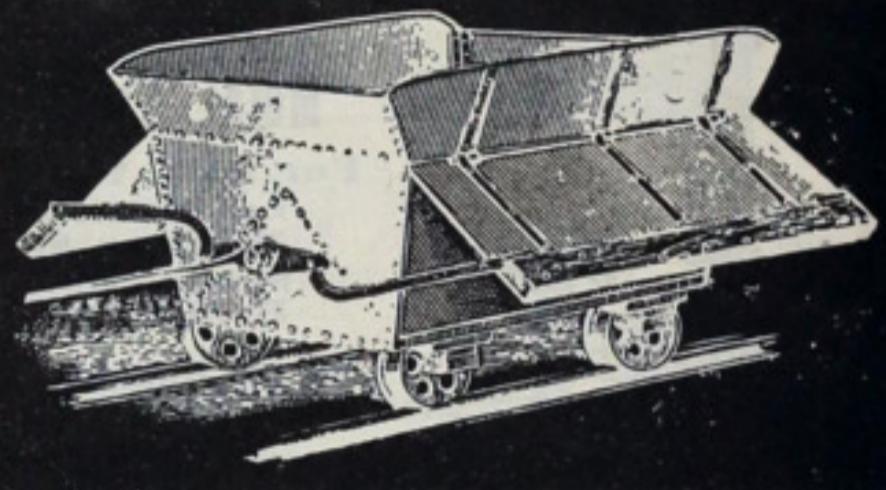


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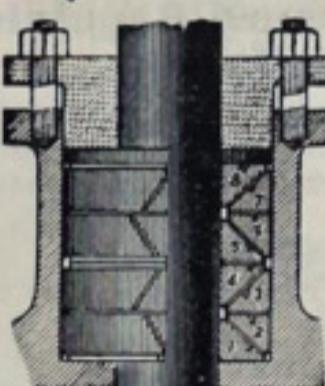
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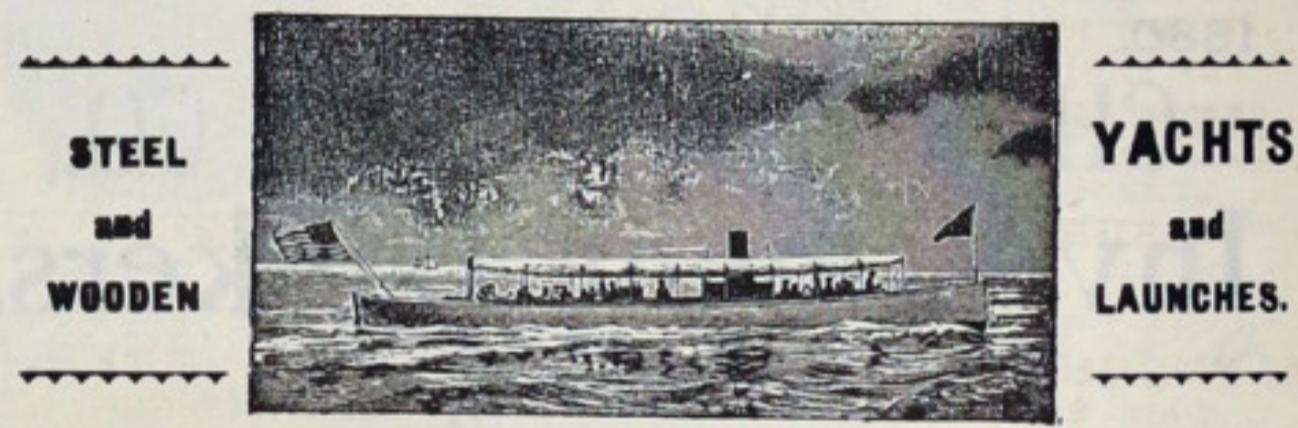
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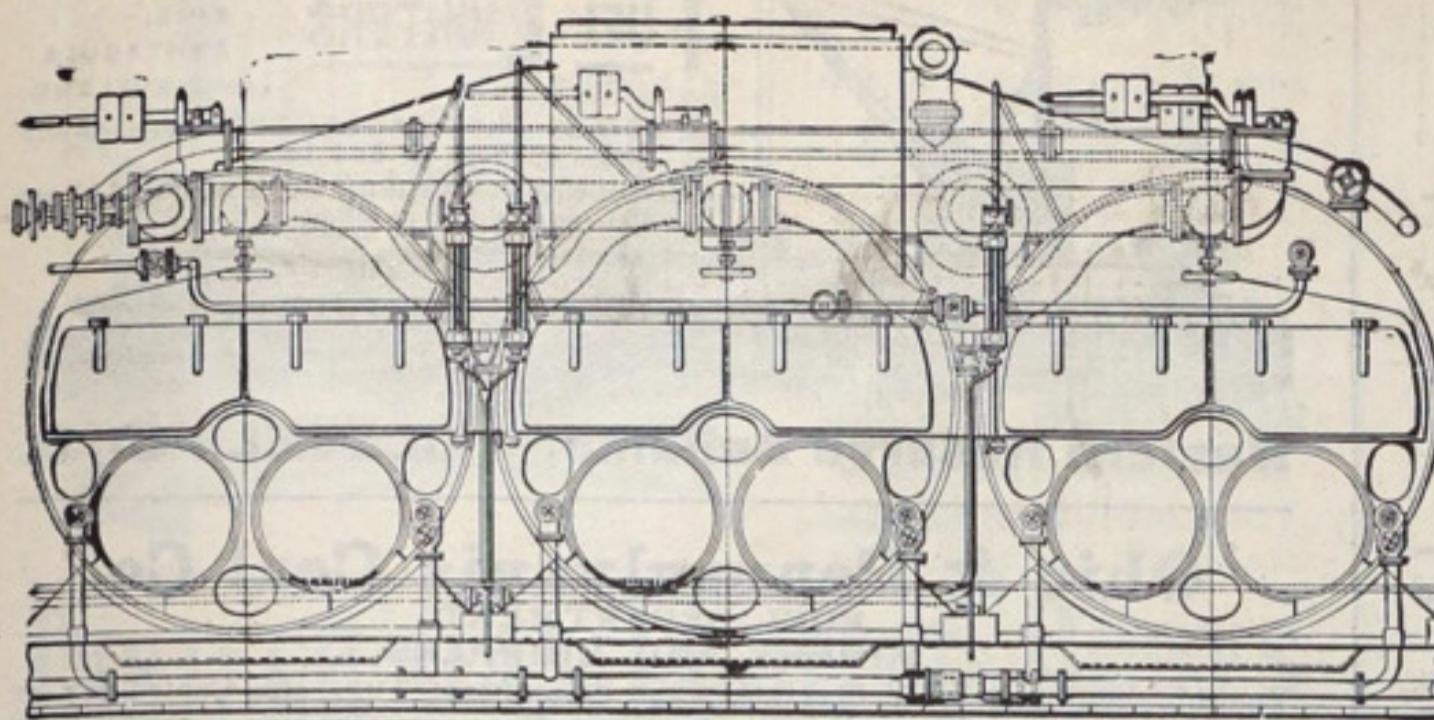
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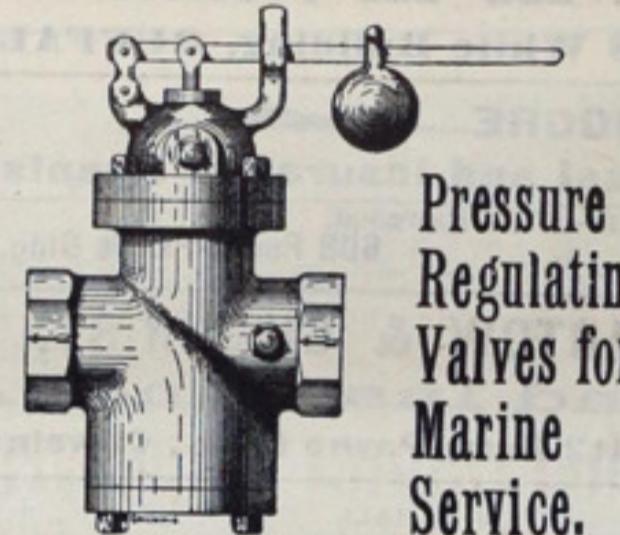
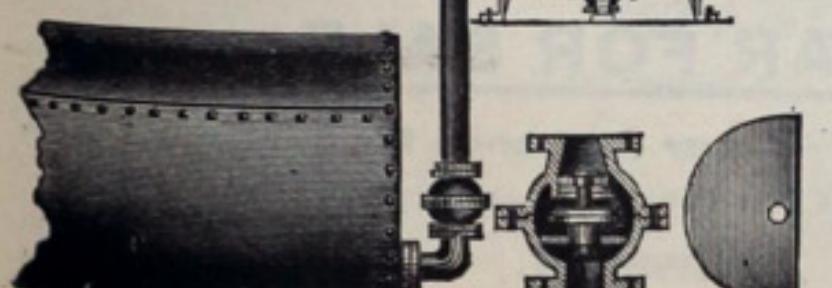
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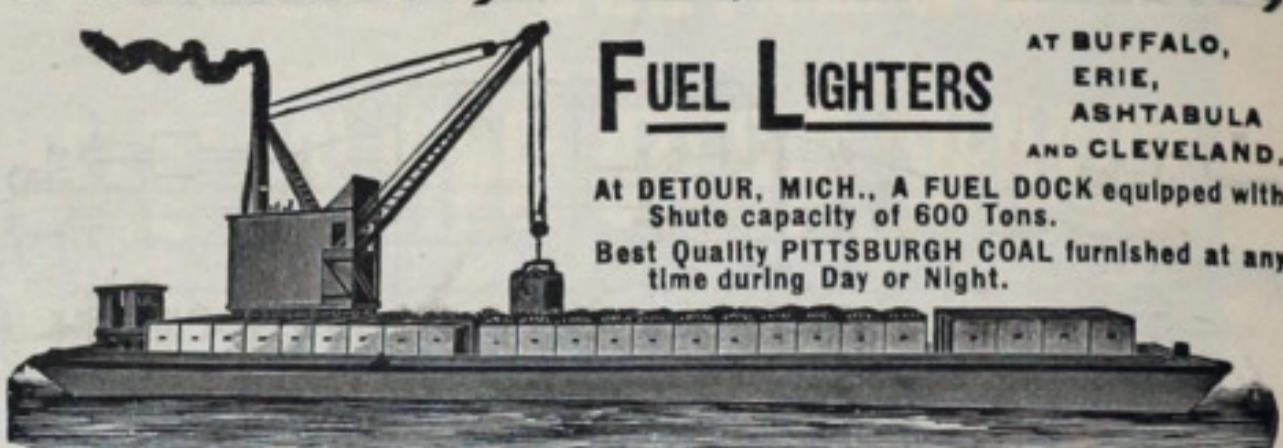
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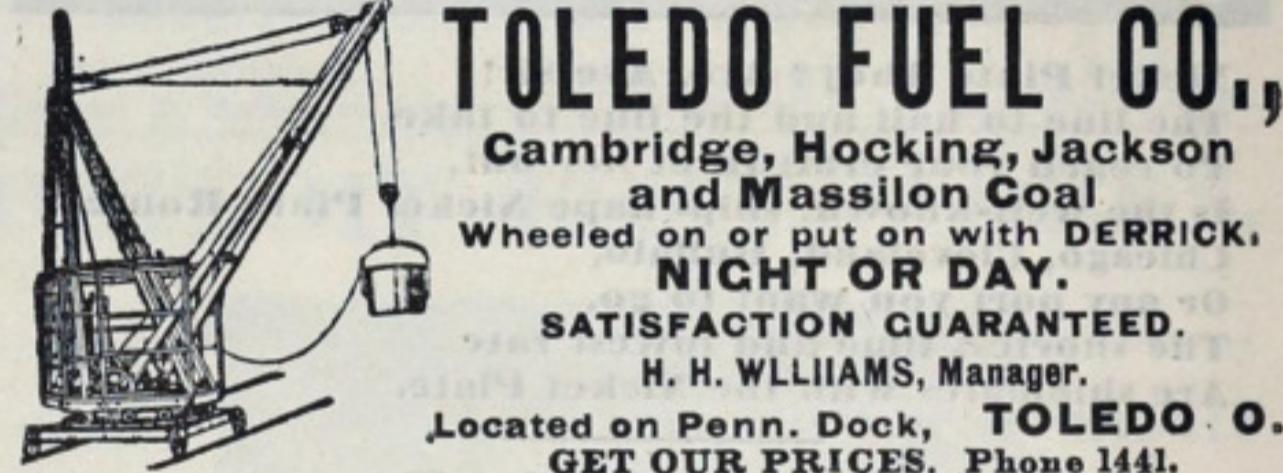
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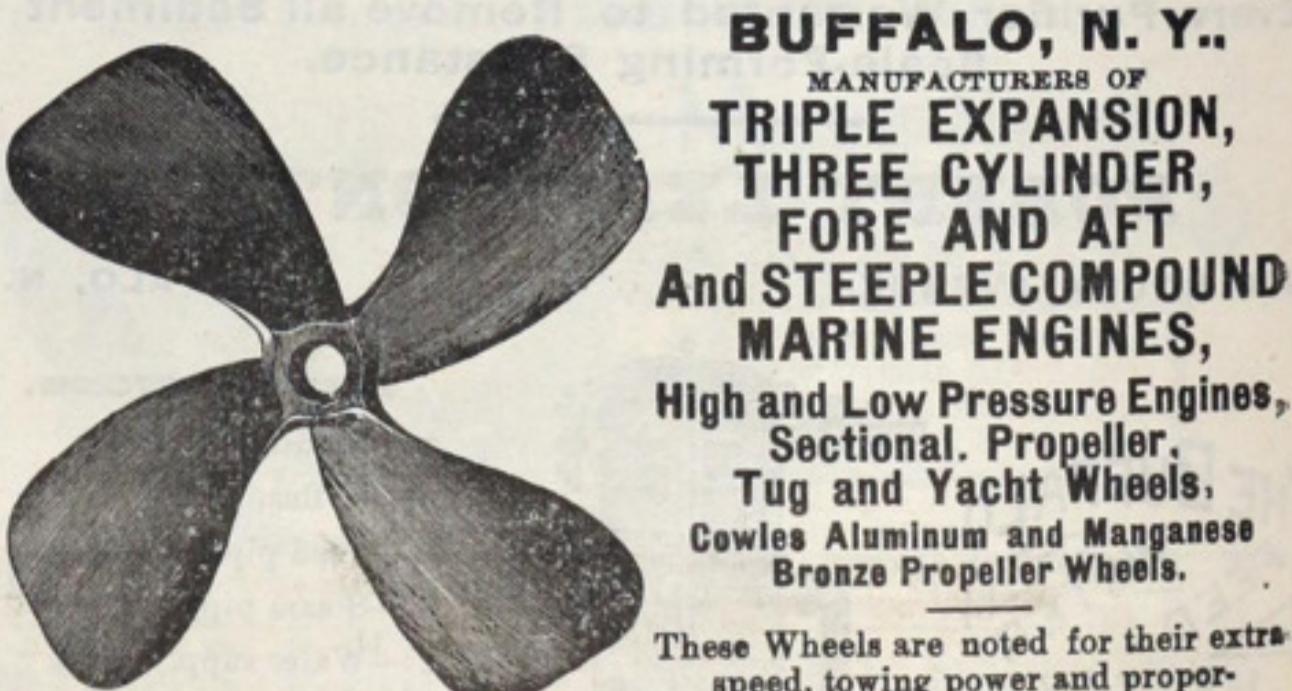
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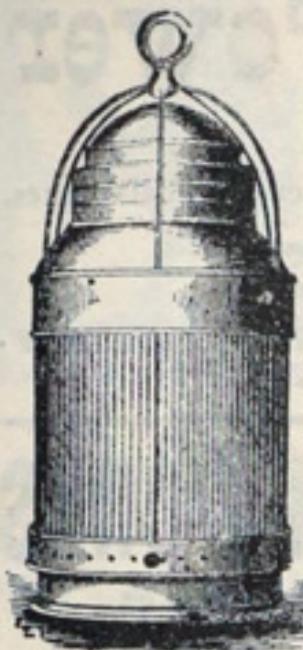
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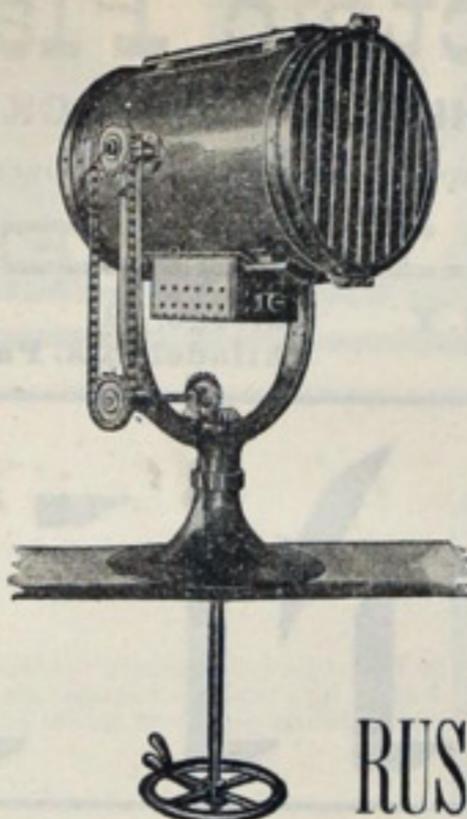
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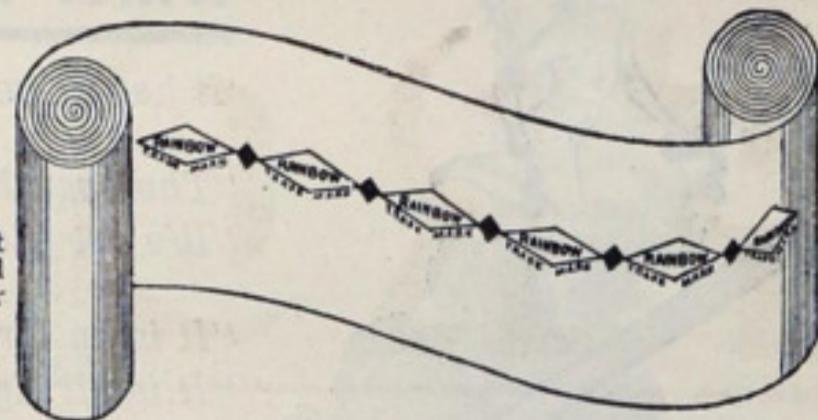
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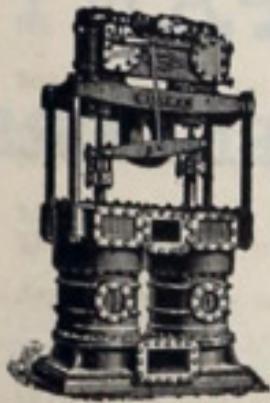
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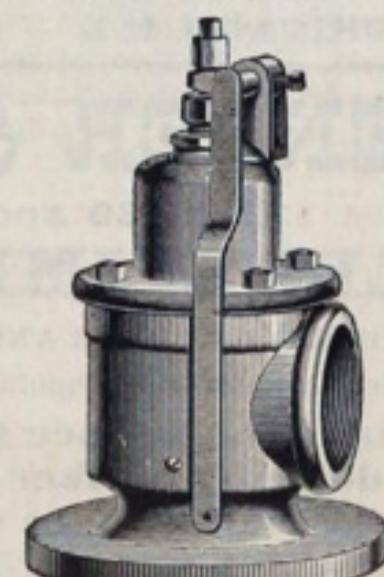
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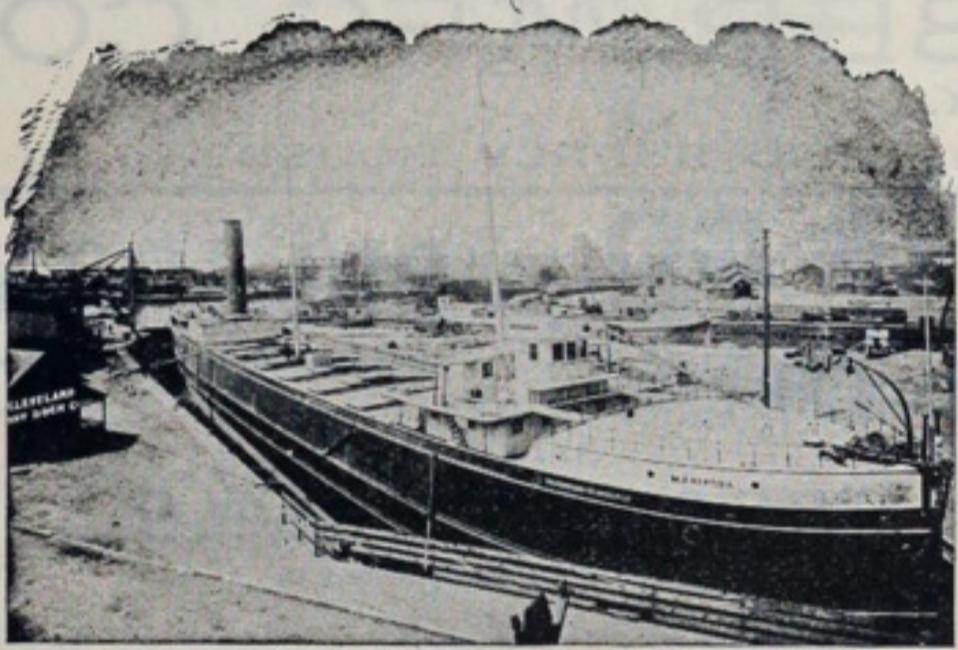
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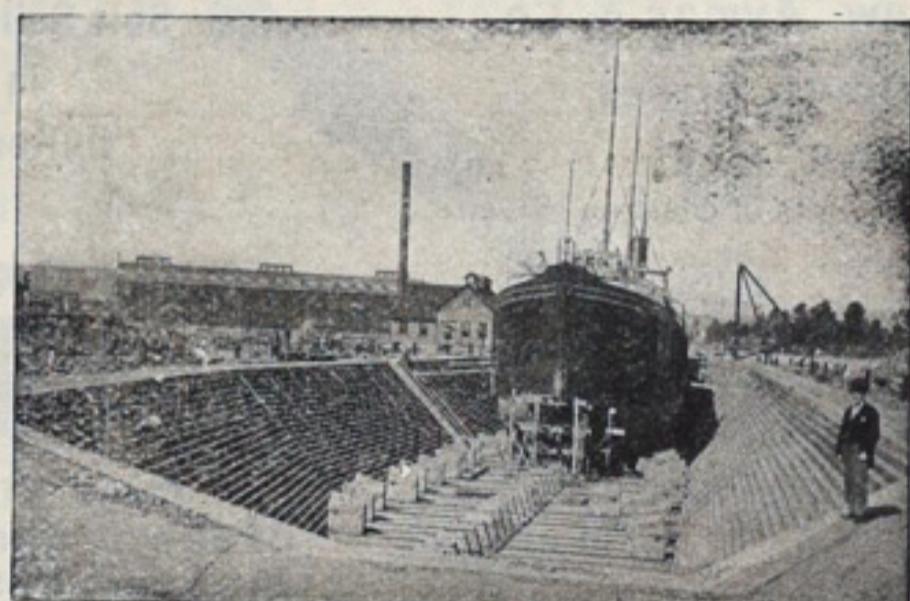
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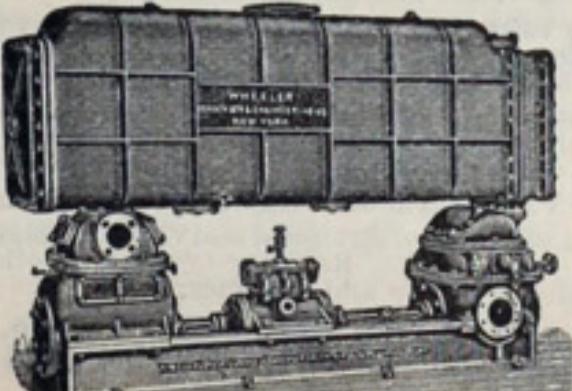
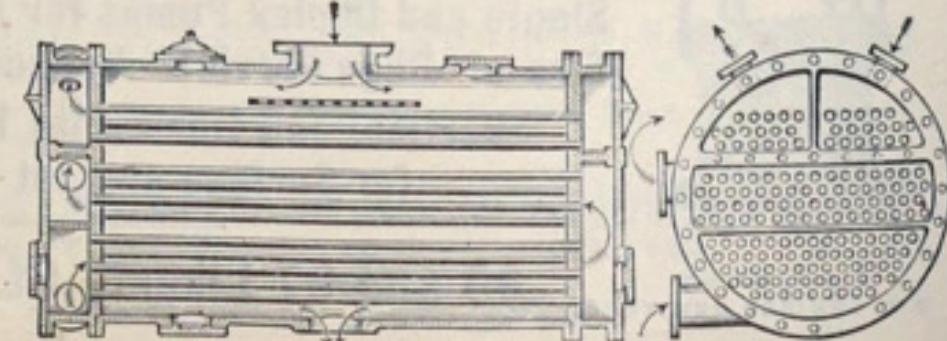
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